IntraStack™ 6014DSB

User's Manual

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This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment.This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case you must correct the interference at your own expense.

Product Warranty

This IntraStack 6014DSB has a three-year warranty which applies to the original purchaser of the product. Asanté Technologies, Inc. warrants that this product will be free from defects in title, materials, and manufacturing workmanship during the warranty period. If the IntraStack 6014DSB is found to be defective, then, as your sole remedy and as the manufacturer's only responsibility,Asanté Technologies, Inc. will repair or replace the product provided that (1) you call Asanté Technologies, Inc. for a Returned Merchandise Authorization (RMA) number, that (2) you clearly write the RMA number on the outside of the package, and that (3) you return it, postage prepaid, during the warranty period.This warranty is exclusive and is limited to the IntraStack 6014DSB.This warranty shall not apply to IntraStack products that have been subject to abuse, misuse, abnormal electrical or environmental conditions, or any condition other than what can be considered normal use.

Note: The warranty card must be filed with Asanté Technologies, Inc. within 30 days after the date of purchase.

Warranty Disclaimers

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The exclusion of implied warranties is not permitted in some states and exclusions specified herein may not apply to you.This warranty provides you with specific legal rights. There may be other rights you have which vary from state to state.

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Table of Contents

List of Figures

List of Tables

Preface

This section provides an overview of the IntraStack 6014DSB User's Manual. It describes its chapters, document conventions, and intended audience.

This chapter contains the following sections:

About This Manual

Manual Contents

This manual introduces the IntraStack 6014DSB Ethernet switch. It describes the switch's installation, configuration, troubleshooting, and available network management functions.

This manual is divided into the following chapters and appendices:

Chapter/Appendix	Description
1 Introduction	Describes the IntraStack 6014DSB, its package contents, features, switching capacity, management options, and factory defaults.
2 Installation	Describes the steps required to install the IntraStack, connect it to the network, and configure it for management. This chapter also describes how to install expansion units and MII expansion modules.
3 LED Indicators	Describes how to monitor the IntraStack's front panel LEDs.
4 Setting Up For Management	Describes the management options available with the IntraStack and how to connect to the switch with those options.
5 Console Management	Describes how to perform some basic management functions using the IntraStack's Local Management Interface.
6 Status Monitoring, Traffic, and Statistics	Describes how to view the IntraStack's current operating information and statistics, as well as how to prepare the switch for the connection of an external traffic analyzer.

Chapter/Appendix	Description
7 Advanced Management	Describes how to configure the Spanning Tree Protocol on the IntraStack.
Appendix A, "Troubleshooting"	Provides some troubleshooting tips for isolating problems with the IntraStack or the network via the switch's front panel LEDs.
Appendix B, "Technical Specifications"	Provides a list of the IntraStack's technical specifications.
Appendix C, "Console Management Map"	Provides a one-page map of the IntraStack's Local Management Interface.
Appendix D, "Technical Support"	Provides information for contacting Asanté Technical Support.

Document Conventions

This manual uses the following conventions to convey instructions and information:

- Commands and key words are in **boldface** font.
- Δ *Note:* Noteworthy information, which contains suggestions or references to other sections in the manual, is in this format.
- S **Important:** Significant information that calls attention to important features or instructions is in this format.

Audience

This manual uses terms and concepts associated with Ethernet networking and switches; it is recommended that the user of this manual have a basic working knowledge of local area networks (LANs).

1

Introduction

This chapter is an introduction to the IntraStack 6014DSB. It provides an overview of the switch and describes its features, management and configuration capabilities, switching capacity, and factory default settings.

This chapter contains the following sections:

IntraStack 6014DSB

The IntraStack 6014DSB is a high-performance, stackable 10/100 Ethernet switch uniquely designed for building high-bandwidth workgroups and high-speed network segments.

The IntraStack 6014DSB has 12 fixed 10/100 ports, two optional Media Independent Interface (MII) expansion slots, 1 future PCI slot, and built-in Web-based network management.

The two MII expansion slots allow for the addition of 10/100TX, 100Base-FX or 10Base-FL connections. See page 2-9 for more details.

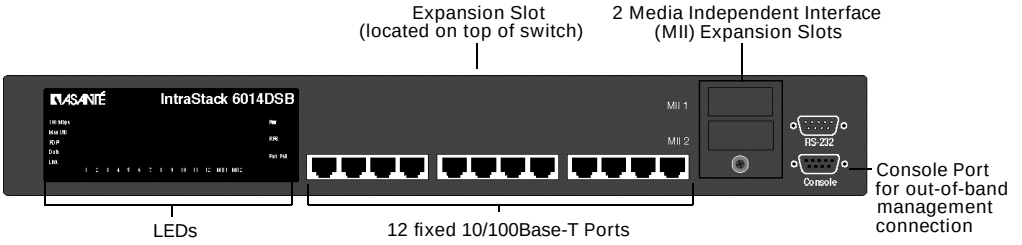


Figure 1-1 IntraStack 6014DSB front panel

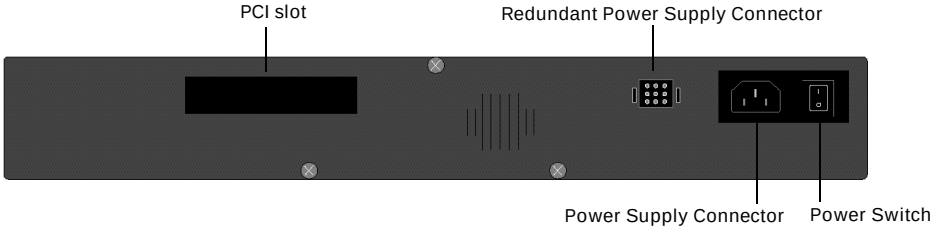


Figure 1-2 IntraStack 6014DSB back panel

IntraStack Components

Expansion Slot

The expansion slot — located on top of the IntraStack 6014DSB's chassis — is used to attach up to two IntraStack expansion units, allowing support of up to 46 connections in a single stack. See "Expansion Units" on page 1-5 for more information.

MII Expansion Slots

The two Media Independent Interface (MII) expansion slots allow for the addition of various access modules, including: 10/100TX, 100Base-FX or 10Base-FL. See "Installing MII Modules" on page 2-9 for more information.

Console Port

The female DB-9 Console port allows for out-of-band management and configuration capabilities. See "Out-of-Band Management" on page 4-4 for more information.

10/100 Ports

The 12 fixed 10/100 ports allow for the connection of 10Base-T or 100Base-TX (Fast Ethernet) network devices. See "Connecting to the Network" on page 2-13 for more information.

LEDs

The LEDs convey the status of each 10/100 port and MII expansion port (if installed). Power, fan fail, and redundant power supply status is also displayed. See "LED Indicators" on page 3-2 for more information.

Redundant Power Supply Connector

The redundant power supply connector can be used to connect to an external Asanté RPSU 6000 redundant power supply unit (sold separately).

The RPSU 6000 provides the IntraStack with power in the event that the switch's main power connection fails. Refer to the RPSU 6000's Installation Guide for more information or to Appendix C in this manual for part number information.

PCI Slot

The PCI connector provides for high-speed connection of the switch to existing network backbones, such as FDDI or wide area links.

S Important: The PCI slot is not available with this release of the IntraStack 6014DSB.

Power Supply Connector

The power supply connector provides the IntraStack's power connection. See Appendix C,"Technical Specifications" for more information.

Power Switch

The power switch turns the IntraStack on or off. See "Connecting Power" on page 2-11 for instructions on powering on the IntraStack.

Expansion Units

The IntraStack's stackable design uses Asanté's Goldcard™ connector technology to expand the switching system via a 2Gbps (gigabits per second) PCI backplane connector, allowing up to 46 connections (3 units) in a single stack. The combined stack functions as a single logical unit.

Initial expansion units for the IntraStack 6014DSB include the following:

- IntraStack 6008FXE — 8 port, 100Base-FX fiber expansion unit.
- IntraStack 6016DSE — 16 port, 10/100TX expansion unit.

See "Installing Expansion Units" on page 2-6 for a brief overview on installing an expansion unit.

S Important: For more information on a particular expansion unit, refer to the expansion unit's Installation Guide.

Figure 1-3 is an example of the IntraStack 6014DSB with an installed IntraStack 6016DSE expansion unit.

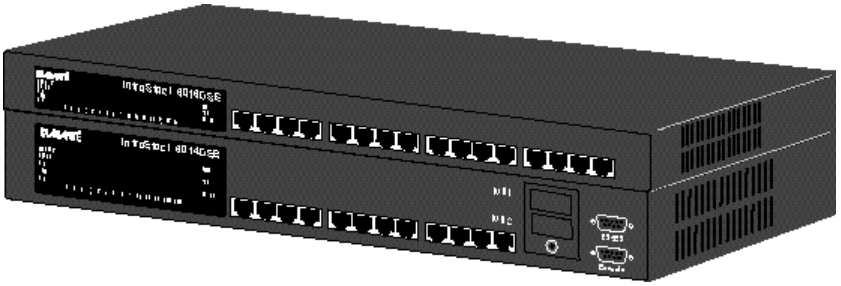


Figure 1-3 IntraStack 6014DSB and 6016DSE expansion unit

Configuration/ Management

The IntraStack can be managed through standard out-of-band sessions through the Console port, via in-band Telnet sessions, through the switch's built-in HTTP server (Web browser management), or via any SNMP-compatible network management application.

Console/Telnet Management

The SNMP (Simple Network Management Protocol) is used to manage the IntraStack. The SNMP agent supports database objects that are defined in the following management information bases (MIBs):

- MIB II (RFC 1213)
- Bridge MIB (RFC 1493)
- RMON (RFC 1757) 1 group

The SNMP agent can be accessed via an out-of-band Console connection or through in-band Telnet sessions. See Chapter 5, "Console Management" for more information.

Web Browser Management

The IntraStack has a built-in HTTP (Hypertext Transfer Protocol) server which allows the switch to be managed with any common World Wide Web browser.

Any networked computer with a functioning Web browser can access the IntraStack. This provides easy-to-use management capabilities without the need for additional management software. Refer to the "IntraStack Web Browser Management Manual Addendum" for information on using a Web browser to manage the IntraStack.

SNMP-Based Management

Any SNMP-based network management application, such as IntraSpection™ Web-based network management software, can be used to manage the IntraStack. See "SNMP-Based Management Software" on page 4-7 for more information.

Switching Capacity

Each 10Base-T/100Base-TX port can forward Ethernet minimum-sized 64-byte packets at the maximum attainable rate of 14,880 or 148,000 packets per second (pps).

The IntraStack 6014DSB fully supports the 802.1d transparent Ethernet bridging standard. IEEE 802.1d compliance provides automatic address learning, packet filtering, protection against corrupted frames and fragments, and the Spanning Tree Protocol.

Chassis Design

The rack-mountable IntraStack 6014DSB chassis is 1.5 RU (rack units) high. Each expansion unit is 1 RU high.

S Important: Do not remove the IntraStack's cover. Refer servicing to qualified service personnel.

Features

The IntraStack 6014DSB has the following features:

- 12 fixed 10/100 switched ports with RJ-45 connectors; stackable up to three units high for a total of 46 10/100 ports
- Two optional MII expansion slots for adding 10/100TX, 100Base-FX or 10Base-FL modules
- One future PCI expansion slot for uplink to existing backbones, such as FDDI or wide area links
- Stackable chassis design expands the switching system via a 2Gbps PCI backplane connector
- HTTP server provides Java-enabled front panel view and SNMP management and configuration via any Web browser
- Telnet (in-band) and Console (out-of-band) management
- 8,000 MAC addresses per unit
- Full duplex support on all ports
- NWay™ Auto-Negotiation on 10/100 ports and 10/100 MII expansion modules
- Full 100Mbps wire-speed, non-blocking packet transfers for total throughput of 2Gbps per unit
- BootP support
- RMON support (1 group)
- MIB II, Bridge MIB support
- Private MIB support (provides IP-to-port mapping)
- 802.1d Spanning Tree support
- PPP dial-in support for remote access to switched resources
- Store-and-forward switching mode
- Advanced diagnostic LEDs
- Redundant power supply connector

Package Contents

The IntraStack 6014DSB is shipped with the following items:

- (1) IntraStack 6014DSB Ethernet switch
- (1) power cord
- (1) Goldcard connector
- (2) stack-mounting pins for installing an expansion unit
- (2) rack-mounting brackets
- (16) standard Phillips screws for attaching the brackets and rack-mounting the switch
- (1) MII opening bracket
- (2) MII cover brackets
- (1) User's Manual (this book)
- (1) Quick Installation Guide
- (1) IntraStack Web Browser Management Manual Addendum
- (1) Registration Card

S Important: If you are missing any of the items listed above, contact the dealer from whom you purchased the IntraStack 6014DSB.

Tools and Materials

Some tools and materials that are not supplied with the IntraStack 6014DSB are needed to connect the switch to an Ethernet network.

The table below lists the tools and materials required for connecting devices to the switch's ports and for rack-mounting the switch.

S Important: For specific instructions on connecting network devices to the IntraStack, see "Connecting to the Network" on page 2-13.

Table 1-1 Tools and Materials Required

Action	Tool/Material Required
Connecting 10/100 ports	Standard Category 5 UTP straight-through cable with RJ-45 connectors. Standard Category 5 UTP cross-over cables with RJ-45 connectors.
Connecting 100Base-FX port (optional MII module)	Dual 62.5/125 micron graded-index multimode fiber-optic cable fitted with an SC connector.
Connecting 10Base-FL port (optional MII modules with SC or ST connectors)	Dual 62.5/125 micron graded-index multimode fiber-optic cable fitted with an SC connector. Dual 62.5/125 micron graded-index multimode fiber optic cable fitted with a dual ST connector.
Connecting to the Console port	Straight-through RS-232 cable with a 9-pin male D-subminiature connector.
Rack-mounting the switch	Phillips screwdriver for mounting the two rack brackets on the unit.

Factory Defaults

The IntraStack 6014DSB is shipped with the following factory default settings:

Table 1-2 Factory Default Settings

Configuration	Default Setting
IP address	0.0.0.0
Subnet Mask	0.0.0.0
Default Gateway	0.0.0.0
Switching Mode	Store-and-forward
10/100 Ports	Auto-negotiation enabled 100Mbps speed Full duplex mode
Spanning Tree	enabled

2

Installation

This chapter explains how to install, connect, and configure the IntraStack 6014DSB to work with your network. It also explains how to install expansion units and MII expansion modules.

This chapter contains the following sections:

Installing the IntraStack 6014DSB

Installation Guidelines

S Important: Before installing the IntraStack 6014DSB, carefully review the following guidelines.

Power Requirements

The source electrical outlet should be installed near the switch, be easily accessible, and be properly grounded.

Make sure the power source adheres to the following guidelines:

- Voltage range: 100 to 240 VAC
- Frequency range: 60/50 Hz
- Maximum current range (6014DSB base unit): 2 A

Environmental Requirements

The IntraStack 6014DSB must be installed in a clean, dry, dust-free area with adequate air circulation to maintain the following environmental limits:

- Temperature: 0° to 45° C
- Relative Humidity: 5% to 85% non-condensing

Avoid direct sunlight, heat sources, or areas with high levels of electro-magnetic interference.

Cooling and Airflow

The IntraStack 6014DSB has two internal fans that cool the interior by drawing air through vents on one side and forcing heated air out through holes on the other side.

S Important: Do not restrict air flow by covering or obstructing air vents on the sides of the chassis.

Installation Overview

The table below describes the steps needed to install the IntraStack 6014DSB. The steps that are optional are labeled "optional"; the steps that are required are labeled "required." The sections that follow explain each step in detail.

To install the IntraStack 6014DSB:

Table 2-1 Installation Overview

Step	Action
1 (required)	Open the box and check the contents. See "Package Contents" on page 1-9 for a complete list of the items included with your IntraStack 6014DSB.
2 (required)	Install the IntraStack in an equipment rack or prepare it for desktop placement. See "Rack Mounting/Desktop Placement" on page 2-4.
3 (optional)	Install expansion unit(s), if any. See "Installing Expansion Units" on page 2-6.
4 (optional)	Install MII expansion module(s), if any. See "Installing MII Modules" on page 2-9.
5 (required)	Connect the power supply. See "Connecting Power" on page 2-11.
6 (required)	Connect the IntraStack to the network. See "Connecting to the Network" on page 2-13.
7 (optional)	Configure the IntraStack for management capabilities. See "Configuring for Management" on page 2-16.

Rack Mounting/ Desktop Placement

The IntraStack 6014DSB can be installed in a standard 19-inch equipment rack. It can also be placed on a stable horizontal surface with support capabilities of 12 pounds (5.4 kilograms).

Equipment Rack Installation

To install the IntraStack in an equipment rack:

S Important: Disconnect all cables from the switch before continuing.

1 Place the IntraStack on a flat, stable surface.

2 Locate a rack-mounting bracket (supplied) and place it over the mounting holes on one side of the unit, as shown in Figure 2-1.

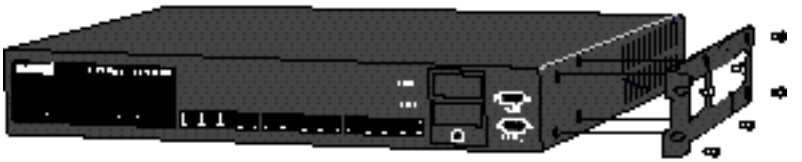


Figure 2-1 Mounting one rack bracket on the IntraStack

3 Insert six screws (supplied) into the holes and tighten with a Phillips screwdriver.

4 Repeat the two previous steps for the unit's other side.

5 Place the IntraStack in the equipment rack.

6 Secure the switch by screwing its mounting brackets to the equipment rack.

- **Important:** Make sure the switch is supported until all the mounting screws for each bracket are secured to the equipment rack. Failure to do so could cause the switch to fall, resulting in personal injury or damage to the unit, or both.

The IntraStack is ready for the installation of an expansion unit (if any). See "Installing Expansion Units" on page 2-6.

If you are not installing an expansion unit at this time, proceed to "Installing MII Modules" on page 2-9.

If you are not installing an expansion unit or an MII module at this time, proceed to "Connecting Power" on page 2-11.

Free-Standing/ Desktop Installation

The IntraStack 6014DSB has four rubber feet on the bottom of the chassis that allow for free-standing installation of the unit.

For free-standing/desktop placement:

- Place the IntraStack on a horizontal surface with a minimum area of 17.1" x 13.5" (434.3 mm x 342.9 mm) and support capabilities of 12 lbs. (5 kg.).

Installing Expansion Units

Up to two expansion units can be added to the top of the IntraStack 6014DSB, allowing up to 46 connections in a single, logical stack.

The IntraStack's stackable design uses Asanté's Goldcard connector technology to expand the switching system via a 2Gbps PCI backplane connector.

Δ *Note:* The following section provides an overview of installing an expansion unit. The steps use the IntraStack 6016DSE expansion unit as an example; however, the steps pertain to all expansion units. For more detailed information on an expansion unit, refer to the unit's Installation Guide.

To install an expansion unit:

S Important: Make sure the IntraStack 6014DSB is powered off.

S Important: Make sure the IntraStack 6014DSB is on a flat, stable surface or is properly installed in an equipment rack.

1 If you are installing the IntraStack system in an equipment rack, install the rack-mounting brackets on the expansion unit. See "Equipment Rack Installation" on page 2-4 for instructions.

2 Remove the protective plate from the top of the IntraStack 6014DSB to expose its expansion slot.

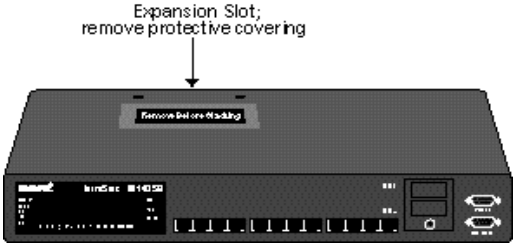


Figure 2-2 IntraStack 6014DSB expansion slot

3 Insert the Goldcard connector expansion card that is included with the IntraStack 6014DSB into the slot, as shown in Figure 2-3.

S Important: You must use the Goldcard connector included with the 6014DSB. This connector is used for the base and middle expansion unit; a smaller Goldcard connector is required between the middle and top expansion unit. The smaller connector is included with the expansion unit.

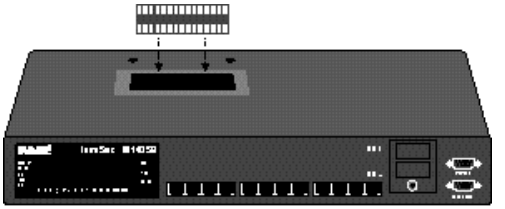


Figure 2-3 Inserting an expansion card into the IntraStack

4 Press firmly into place.

5 Screw the two stack-mounting pins (supplied) into the holes at the top of the IntraStack 6014DSB, as shown in Figure 2-4.

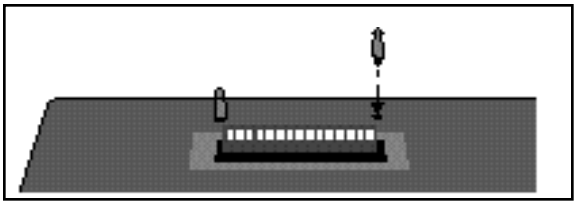


Figure 2-4 Installing stack-mounting pins

The stack-mounting pins align and secure the expansion unit to the 6014DSB base unit.

6 Take the IntraStack expansion unit and remove the label from the bottom of the unit to expose its slot.

7 Carefully place the expansion unit on top of the IntraStack 6014DSB, ensuring that the unit is aligned with the stack-mounting pins and that the Goldcard connector expansion card is properly fitted in the slots. See Figure 2-5.

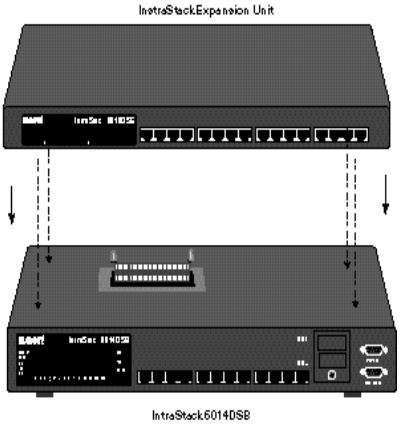


Figure 2-5 Installing an expansion unit

8 Firmly press into place.

9 Plug one end of the expansion unit's supplied power cord into the power connector on the back of the expansion unit.

S Important: Do not power on the expansion unit. See "IntraStack Power Sequence" on page 2-12 for information on the switch's power sequence before powering on the expansion unit.

10 Repeat steps 1-7 to install a third expansion unit.

S Important: The top expansion unit in an IntraStack stack requires a smaller-sized Goldcard connector. This connector is included with the expansion unit.

Installing MII Expansion Modules

The IntraStack has two optional Media Independent Interface (MII) expansion slots which allow for the addition of various types of media access modules, including:

- 10/100Base-TX
- 100Base-FX
- 10Base-FL

The MII expansion modules are sold separately and comply with IEEE 802.3 and 802.3u specifications.

To install an MII expansion module:

S Important: The MII expansion modules are hot-swappable; you can install and/or remove a module without turning the switch's power off.

1 Remove the MII opening bracket from the front of the MII expansion slots (located on the IntraStack's front panel) by unscrewing the bracket's thumbscrew.

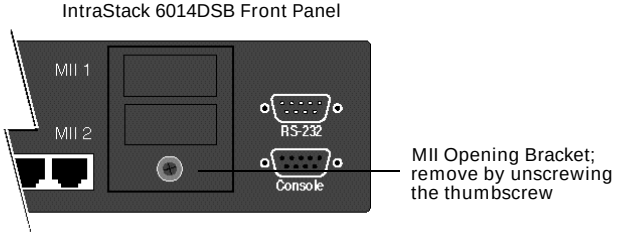


Figure 2-6 MII expansion slot covers

After the MII opening bracket is removed, you will see two MII cover brackets, one covering each slot.

2 Remove an MII cover bracket from the front of one of the MII expansion slots.

3 Align the bottom of an MII module with the rails on the inside of the expansion slot.

4 Slide the MII module into the expansion slot until it stops, then push the module in until it seats with the connector. See Figure 2-7.

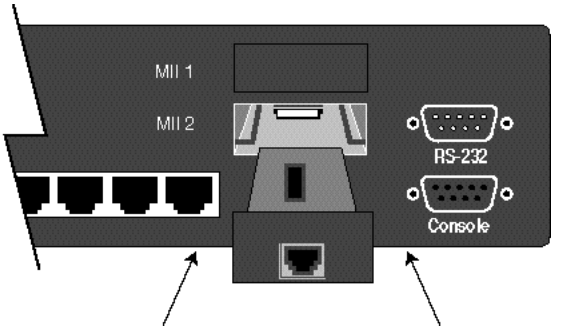


Figure 2-7 Installing an MII expansion module

5 Repeat steps 2 – 4 if you are installing another MII expansion module.

6 Place the MII opening bracket over the MII expansion slots.

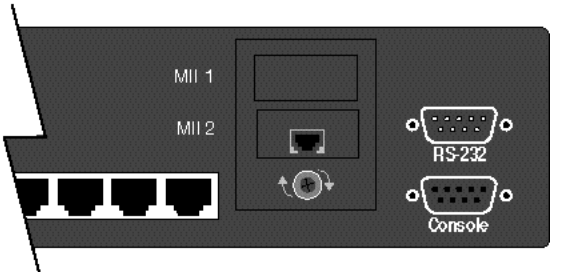


Figure 2-8 Securing MII opening bracket

7 Tighten the thumbscrew on the MII opening bracket's cover to secure the MII expansion module(s).

The installation is complete.

For more information on MII expansion modules, refer to the Installation Guide included with your module.

Connecting Power

To connect power to the IntraStack:

- **Important:** Carefully review the power requirements on page 2-2 before connecting power to the IntraStack.

1. Plug one end of the supplied power cord into the power connector on the back of the switch.

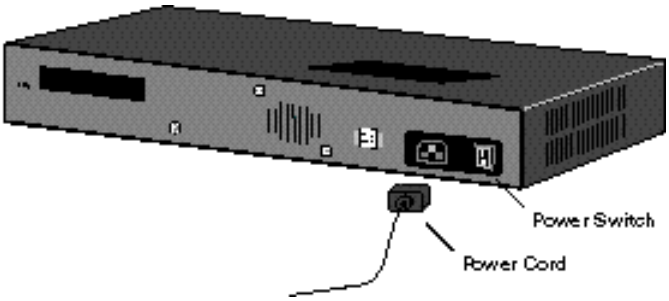


Figure 2-9 Connecting the power cord to the IntraStack 6014DSB

2. Plug the other end of the power cord into a grounded AC outlet.

3. Turn the power switch to the "on" position.

   The front panel LEDs blink and the power light illuminates and remains on.

   - **Important:** If the power does not come on, refer to Appendix A, "Troubleshooting."

4. Turn the switch's power off.

   The switch is ready to be connected to the network. See "Connecting to the Network" on page 2-13.

IntraStack Power Sequence

The following power sequence must be followed when an expansion unit is installed.

Power-On Sequence

1. Power on the expansion unit(s) first.
2. Power on the IntraStack 6014DSB last.

> **Important:** An IntraStack stack will not function properly if an expansion unit is powered off within the stack while the other units remain powered on.

Power-Off Sequence

1. Power off the expansion unit(s) first.
2. Power off the IntraStack 6014DSB last.

Connecting to the Network

To connect the IntraStack to an Ethernet network:

1. Make sure the IntraStack is not powered on.
2. Connect network devices to the switch, following the cable guidelines outlined below.
3. Power on the IntraStack.

   After the IntraStack is connected to the network and is powered on, it can be configured for management capabilities. See "Configuring for Management" on page 2-16.

10/100 Ports Cabling Procedures

The 12 fixed 10/100 ports allow for the connection of 10Base-T or 100Base-TX network devices. The ports are compatible with IEEE 802.3 and 802.3u standards.

S Important: The IntraStack 6014DSB must be located within 100 meters of its attached 10Base-T or 100Base-TX devices.

Table 2-2 10/100 Ports Cable Guidelines

Connecting To	Cable Required
Network Station	Category 5 UTP (Unshielded Twisted-Pair) straight-through cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub	Category 5, UTP cross-over cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub's Uplink port	Category 5, UTP straight-through cable (100 meters maximum) with RJ-45 connectors.

MII Expansion Ports Cabling Procedures

The optional MII expansion slots allow for the connection of 10/100TX, 100Base-FX (fiber), or 10Base-FL ports.

10/100TX Module

Table 2-3 10/100TX MII Module Cable Guidelines

Connecting To	Cable Required
Network Station	Category 5 UTP (Unshielded Twisted Pair) cross-over cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub	Category 5, UTP straight-through cable (100 meters maximum) with RJ-45 connectors.
Repeater/Hub's Uplink port	Category 5, UTP cross-over cable (100 meters maximum) with RJ-45 connectors.

100Base-FX Module

Table 2-4 100Base-FX MII Module Cable Guidelines

Connecting To	Cable Required
All Network Devices	Dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector.

10Base-FL Module

Table 2-5 10Base-FL MII Module Cable Guidelines

Connecting To	Cable Required
SC Connector All Network Devices	Dual 62.5/125 micron graded-index multimode fiber-optic cable with an SC connector.
ST Connector All Network Devices	Dual 62.5/125 micron graded-index multimode fiber-optic cable with a dual ST connector.

Cabling Scenarios

The following diagram illustrates some of the various cabling scenarios available with the IntraStack 6014DSB.

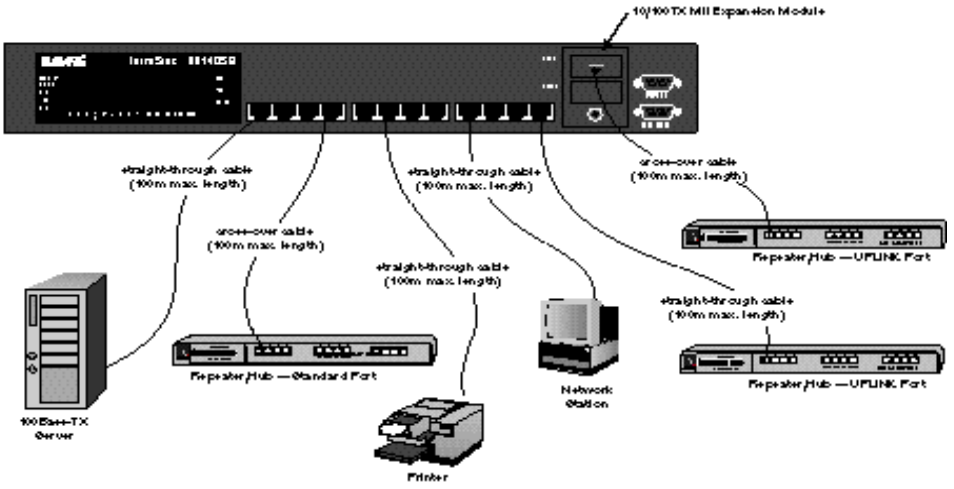


Figure 2-10 IntraStack 6014DSB cabling scenarios

Configuring for Management

To use the IntraStack 6014DSB as a managed switch, it must be configured with an IP address. This can be accomplished in one of two ways:

- automatically using BootP (default)
- manually via the Console port

BootP Configuration

The IntraStack 6014DSB is shipped with BootP support. BootP allows the switch to be automatically configured with an IP address when the switch is connected to the network and is powered on, if your network contains a BootP server configured with available IP addresses.

S Important: BootP configuration only works if the switch does not have an IP address assigned to it. By default, the IntraStack is shipped without an assigned IP address.

1 Make sure your network has a BootP server configured with a valid IP address entry for the IntraStack 6014DSB.

2 When the IntraStack is connected to the network and is powered on, it automatically transmits a BootP request across the network (up to 10 times) until it receives a valid IP address from the BootP server.

3 After an IP address is received, the switch can be managed via in-band access. See Chapter 4 for more information.

To verify that the switch received an IP address, use a tool such as Ping[1] to try and access the IntraStack; if you can access the IntraStack, it is properly configured with an IP address.

See "Bootstrap Configuration" on page 5-14 for more information on using BootP.

1. Ping is an application that can be used to test whether a remote device is properly connected to a network.

Console Configuration

To manually configure the IntraStack with an IP address via the switch's Console port, use a VT100 terminal or a VT100 terminal emulator running on a workstation or personal computer (PC) to connect to the switch's Local Management Interface.

1. Using a straight-through RS-232 cable with a 9-pin male D-subminiature plug at one end, connect a terminal or workstation (PC) running a terminal emulator to the Console port on the front of the IntraStack.

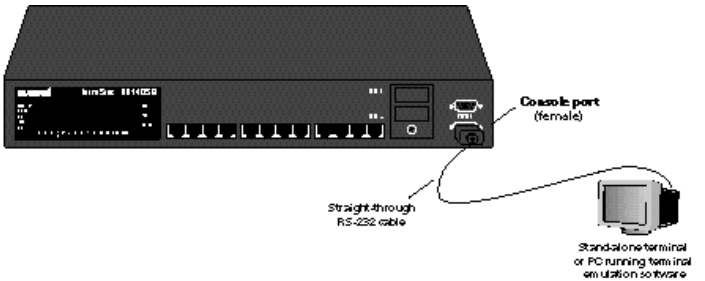


Figure 2-11 Connecting to the Console port

2. Make sure both units are powered on.

   If using a PC with a terminal emulator, make sure it is configured with the following terminal settings:

   - Bits Per Second: 9600
   - Data Bits: 8
   - Parity: None
   - Stop Bits: 1
   - Flow Control: None

3. Once connected, the Local Management Main Menu appears on the terminal screen, as shown in Figure 2-12.

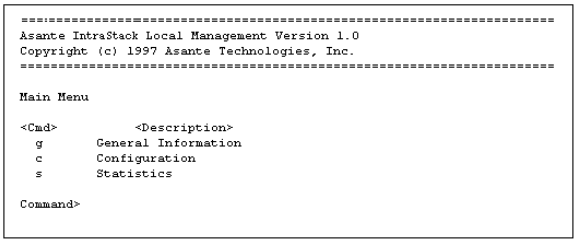


Figure 2-12 IntraStack Local Management Interface Main Menu

4 Type c to open the Configuration Menu.
The "Enter Password" prompt appears.

5 Type your password at the prompt.

- **Important:** The default password is Asante. The password is case sensitive.

  For information on changing the password, see "Changing the Password" on page 5-46.

6 Type i to open the Switch IP Configuration menu.

7 Type i to select the option "Set IP Address."

8 Type the IP address to be assigned to the switch at the prompt.

- **Important:** Depending on your network configuration, you may also need to set subnet mask and default gateway (router) information for the switch. See "System IP Configuration" on page 5-12 for instructions.

9 Press return

10 Type q to return to the Configuration Menu.
The IntraStack is configured with an IP address and can now be managed via in-band access. See Chapter 4, "Setting Up For Management."

3

LED Indicators

This chapter describes the IntraStack 6014DSB's front panel layout and explains how to interpret the LEDs and indicator lights.

This chapter contains the following sections:

LED Indicators

The IntraStack 6014DSB has five rows of LEDs on its front panel that allow for easy and fast troubleshooting. The LEDs convey the status of each 10/100TX port as well as the status of the MII expansion ports (if installed). See Figure 3-1.

The IntraStack 6014DSB also has three indicator lights that convey power, redundant power supply, and fan fail status.

The five rows of port LEDs display:

- 100Mbps (100Mbps operation)
- Max util (maximum utilization)
- FDP (full duplex operation)
- Data
- Link

The three indicator lights display:

- Pwr (power)
- RPS (redundant power supply)
- Fan Fail

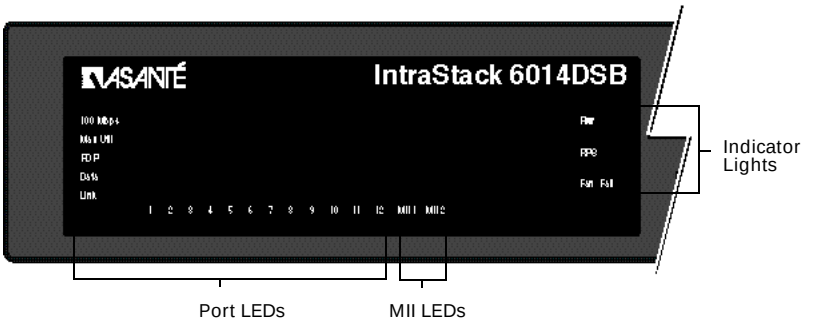


Figure 3-1 IntraStack 6014DSB front panel layout

Port LEDs

The IntraStack has five rows of LEDs. The following table states their color and meaning.

Table 3-1 Port LED Descriptions

LED	Color	Meaning
100Mbps	green	The port is operating at 100Mbps speed.
Max Util	amber	The port's receive buffer is full (maximum utilization). *Note:* It is normal to see these LEDs light when the network is in a state of moderate activity.
FDP	amber	The port is operating in full duplex mode. *Note:* Full duplex means that a port can transmit and receive at the same time.
Data	green	Traffic activity is occurring on the port (transmit [TX] or receive [RX]). *Note:* These LEDs light only during extremely high periods of network activity.
Link	green	The port is properly connected to a powered-on node or other network device.

Δ *Note:* For information on using the front-panel LEDs to troubleshoot problems with your network, see Appendix A, "Troubleshooting."

Indicator Lights

The IntraStack has three indicator lights. The following table states their color and meaning.

Table 3-2 Indicator Light Descriptions

LED	Color	Meaning
Power	green	The IntraStack is receiving electrical power.
RPS	amber	The IntraStack's connection to its main power supply has failed and the switch is using the redundant power supply unit (RPSU 6000), if installed.
Fan Fail	amber	One, or possibly both, of the IntraStack's internal fans has failed. s Important: If this LED lights, contact Asanté Technical Support (see Appendix D).

4

Setting Up For Management

This chapter describes the IntraStack 6014DSB's management options and explains how to connect to the switch using those options.

This chapter contains the following sections:

IntraStack Management

Overview

The IntraStack 6014DSB and any attached expansion units can be managed using any of the following methods:

Table 4-1 Management Options

Method	Type	Description
Console	out-of-band management	local connection to the IntraStack via the switch's Console port
Telnet (four sessions maximum)	in-band management	remote connection over the network to the IntraStack via a terminal emulation program
HTTP Server	in-band management	remote connection to the IntraStack via a Web browser
SNMP-Based Network Management Software	in-band management	remote connection to the IntraStack via any SNMP-based network management application such as IntraSpection

This chapter describes how to connect to the IntraStack using either out-of-band or in-band management, as illustrated in Figure 4-1.

For information on each management method, refer to the following sections:

- Console/Telnet management — see Chapter 5, "Console Management."
- HTTP Server management — see the IntraStack Web Browser Management Manual Addendum.
- SNMP-based network management software — see "SNMP-Based Management Software" on page 4-7.

Management Scenarios

The following diagram illustrates the management options available with the IntraStack 6014SDB.

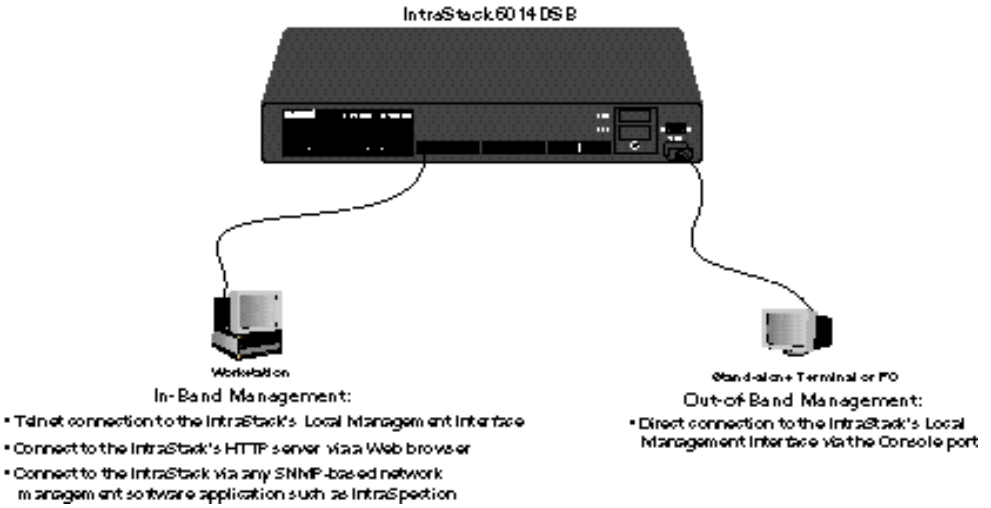


Figure 4-1 IntraStack management options

Out-of-Band Management

Out-of-band network management allows you to configure, manage, and monitor the IntraStack 6014DSB and each of its ports. You can perform these functions via the following method:

- By attaching a terminal (or a terminal emulator) to the IntraStack's Console port and using the menu-driven Local Management Interface.

Out-of-band network management is guaranteed even when the in-band Ethernet network is down.

- Important: The IntraStack 6014DSB's RS-232 port is not supported in this release.

To access the IntraStack Local Management Interface using out-of-band management:

1. Connect a stand-alone terminal or a PC running a terminal emulator directly to the IntraStack's Console port using a straight-through RS-232 serial cable with a male connector. See Figure 4-2.

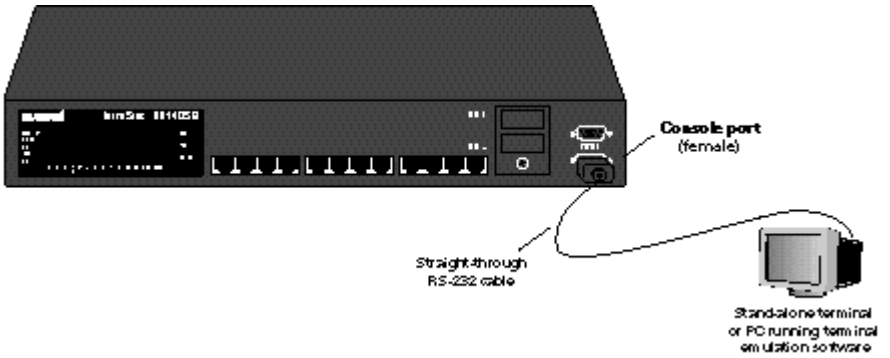


Figure 4-2 Connecting to the Console port

2. Make sure both units are powered on.

If using a PC with a terminal emulator to connect to the Console port, make sure it is configured with the following terminal settings:

- Bits Per Second: 9600
- Data Bits: 8
- Parity: None
- Stop Bits: 1
- Flow Control: None

3 Once connected, the Local Management Interface Main Menu appears on the screen, as shown in Figure 4-3.

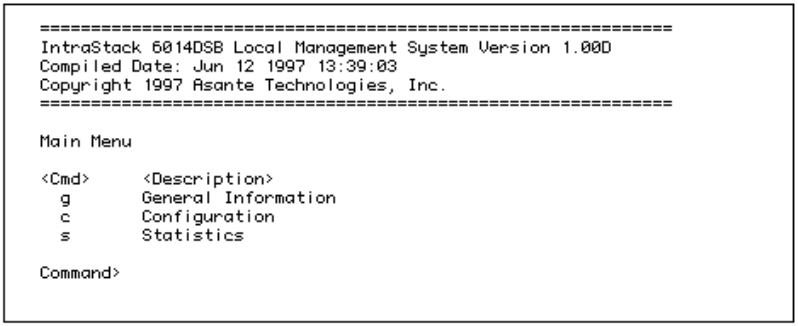


Figure 4-3 Local Management Interface Main Menu

See Chapter 5, "Console Management," for information on using the Local Management Interface to manage the IntraStack.

S Important: A password is needed to access the Configuration Menu. The default password is Asante. The password is case-sensitive.

In-Band Management

In-band network management allows you to manage, control, and monitor the IntraStack 6014DSB and each of its ports over the Ethernet network.

You can perform these functions by accessing the IntraStack via any of the following methods:

- By connecting with a terminal emulation program such as Telnet and using the Local Management Interface.
- By connecting with any common World Wide Web browser and using the Web Management Interface.
- By connecting with any SNMP-based network management application and using its interface.

To manage the IntraStack via in-band management:

1. Make sure the network to which the IntraStack is connected is up and running.
2. Make sure the IntraStack is configured with valid IP information.

   See "Configuring for Management" on page 2-16.
3. Connect to the IntraStack with a terminal emulator, a Web browser, or any SNMP-based network management application.

   ### Terminal Emulator

   See Chapter 5, "Console Management," for information on managing the IntraStack 6014DSB with a terminal emulator.

   Δ *Note:* All management screens using a terminal emulator are identical to those of the out-of-band Console interface.

Web Browser

Refer to the "IntraStack Web Browser Management Manual Addendum" for information on managing the IntraStack 6014DSB with a Web browser.

SNMP-Based Management Software

Refer to the software's User's Manual for information on managing the IntraSwitch with SNMP-based management software.

5

Console Management

This chapter describes how to manage the IntraStack 6014DSB using the out-of-band Console or in-band Telnet interface.

This chapter contains the following sections:

Console Management

Overview

The IntraStack's Local Management Interface is a menu-driven application that provides for management and configuration of the IntraStack and each of its ports.

The Local Management Interface can be accessed via two methods:

- Out-of-band connection to the Console port.
- In-band connection via a terminal emulator such as Telnet (four sessions maximum).

S Important: Refer to Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface via one of the methods listed above.

This chapter describes each menu item in the Local Management Interface as well as how to perform the configuration and management tasks outlined in Tables 5-1 and 5-2.

Configuration Tasks

Table 5-1 Configuration Tasks

Management Tasks

Table 5-2 Management Tasks

Management Task	Page
Enabling the Duplicated-IP Trap	page 5-34
Viewing the Trap Log	page 5-35
Resetting the IntraStack	page 5-42
Scheduling a Reset	page 5-42
Viewing the System Log	page 5-43
Clearing the System Log	page 5-44
Setting the Telnet Idle Time-Out Period	page 5-45
Changing the Password	page 5-46

S Important: For information on monitoring statistics, viewing the switch's current operating and system information, or preparing the IntraStack for traffic monitoring, see Chapter 6, "Status Monitoring, Traffic, and Statistics."

Local Management Interface

After you connect to the Local Management Interface using either out-of-band Console or in-band Telnet connection as described in Chapter 4, the Main Menu appears, as shown in Figure 5-1.

Main Menu

```
============================================================
IntraStack 6014DSB Local Management System Version 1.00D
Compiled Date: Jun 12 1997 13:39:03
Copyright 1997 Asante Technologies, Inc.
============================================================

Main Menu

<Cmd>     <Description>
  g       General Information
  c       Configuration
  s       Statistics

Command>
```

Figure 5-1 Local Management Interface Main Menu

From the Main Menu, you can access three submenus:

- General Information — page 5-6
- Configuration — page 5-7
- Statistics — page 5-47

If you are using Telnet, a fourth option will be available — Close Connection. This option closes your remote connection to the IntraStack's Local Management Interface.

Accessing a Submenu

To access a submenu, type the command letter of the corresponding option (e.g., type g for General Information).

Exiting a Submenu

To exit a submenu, type q. To exit a command line (e.g., the "Set Password" option in the Configuration Menu), press ctrl-c.

Δ *Note:* For a one-page map of the Local Management Interface, refer to Appendix C, "Console Management Map."

General Information Menu

The General Information Menu displays the IntraStack's current operating information; such as, the switch's name, IP address, and boot information.

Δ *Note:* The information displayed on this screen is read-only.

Accessing the General Information Menu

o Type g from the Local Management Interface Main Menu. A screen similar to Figure 5-2 appears:

```
IntraStack 6014 DSB General Information Menu

Software Version
  Running Image Version/Date: 1.00F/Jul 29 1997 13:23:25
  Bank 1 Image Version/Date:  1.00D/Jul 29 1997 13:21:13
  Bank 2 Image Version/Date:  1.00F/Jul 29 1997 13:23:25 (Boot)
Administration Information
  Switch Name:      <none>
  Switch Location: <none>
  Switch Contact:  <none>
System Information
  DRAM Size:        8MB
  Flash Size:       1.5MB
  EEPROM Size:      32KB
Switch MAC Address, IP Address, Subnet Mask and Gateway
  MAC Address:      00:00:94:D3:00:00
  IP Address:       192.203.54.228
  Subnet Mask:      255.255.255.0
  Gateway:          0.0.0.0
Bootstrap Configuration
  Boot Load Mode:  LOCAL
  TFTP Server:      192.203.54.77
  Boot File Name:  c:\tftp\agent.ima
Press any key to continue...
```

Figure 5-2 General Information Menu

S Important: For a description of each parameter on the General Information Menu, see "General Information Menu Parameters" on page 6-3.

To exit the General Information Menu, press the space bar on your keyboard.

Configuration Menu

The Configuration Menu allows you to manage and configure the IntraStack and each of its ports.

Logging into the Configuration Menu

1. Type c from the Local Management Interface Main Menu.

2. Enter your password at the "Enter Password" prompt, then press return.

   S Important: The default password when you first access the Configuration Menu is Asante. The password is case-sensitive; enter it exactly as shown.

   For information on changing passwords, see "Changing the Password" on page 5-46.

   The Configuration Menu appears, as shown in Figure 5-3.

```
IntraStack 6014 DSB Configuration Menu

<Cmd>     <Description>
  a       System [A]dministration Configuration
  i       Switch [I]P Configuration
  b       [B]ootstrap Configuration
  n       S[N]MP Configuration
  p       [P]ort Configuration
  s       [S]panning Tree Configuration
  m       Traffic [M]onitoring Configuration
  f       [F]orwarding DB/Security Configuration
  k       System Cloc[k] Configuration
  g       TFTP Ima[g]e File Downloading Configuration
  r       System [R]eset Options
  l       System [L]og
  t       Set Idle [T]ime-out
  c       [C]hange Password
  q       Return to previous menu

Command>
```

Figure 5-3 Configuration Menu

3. From this menu you can access configuration submenus by typing the command letter of the corresponding menu option (e.g., type a for the System Administration Configuration Menu).

Configuration Menu Options

Table 5-3 provides an overview of each Configuration Menu item.

Table 5-3 Configuration Menu Options

Menu Item	Description
System Administration Configuration	Displays and allows you to change the name, location, and contact information for the IntraStack. See "System Administration Configuration" on page 5-10.
Switch IP Configuration	Displays and allows you to change the information needed to access the IntraStack over the network (in-band management). See "System IP Configuration" on page 5-12.
Bootstrap Configuration	Allows you to change the boot method the IntraStack uses for loading its software. Also allows you to change the parameters used for downloading a new version of runtime software for the IntraStack. See "Bootstrap Configuration" on page 5-14.
SNMP Configuration	Displays and allows you to change the IntraStack's SNMP (Simple Network Management Protocol) parameters; such as, read/write community strings, trap authentication, and trap receivers. See "SNMP Configuration" on page 5-19.
Port Configuration	Allows you to manually configure each of the switch's ports for speed, connection, link mode, and auto-negotiation. Also displays an overall status of the IntraStack system. See "Port Configuration" on page 5-23.
Spanning Tree Configuration	Displays and allows you to change the switch's Spanning Tree parameters. See "Spanning Tree Configuration" on page 5-28.
Traffic Monitoring Configuration	Allows you to prepare the IntraStack for traffic monitoring with an external traffic analyzer. See "Traffic Monitoring Configuration" on 5-29.

Menu Item	Description
Forwarding DB/Security Configuration	Allows you to view and search for addresses in the IntraStack's MAC Forwarding Table. Also allows you to set a trap for duplicate IP addresses and view the trap log. See "Forwarding Database/Security Configuration" on page 5-31.
System Clock Configuration	Allows you to set the IntraStack's real-time system clock. See "System Clock Configuration" on page 5-36.
TFTP Image File Downloading Configuration	Allows you to upgrade the IntraStack's software. See "TFTP Image File Downloading Configuration" on page 5-38.
System Reset Options	Allows you to reset the IntraStack by performing a "warm" reboot of the switch. Also allows you to set the switch for an automatic reset (up to 24 hours in advance). See "System Reset Options" on page 5-41.
System Log	Allows you to view the IntraStack's System Log. See "System Log" on page 5-43
Set Idle Time-out	Allows you to set the idle time-out period when using Telnet to access the IntraStack. See "Idle Time Out" on page 5-45.
Change Password	Allows you to change the password needed to access the Configuration Menu. See "Changing the Password" on page 5-46.
Return to Previous Menu	Exits the Configuration Menu and returns you to the Local Management Interface Main Menu.

System Administration Configuration

This menu displays and allows you to change the name, location, and contact information for the IntraStack.

To access the System Administration Configuration Menu, type a in the Configuration Menu. A screen similar to Figure 5-4 appears.

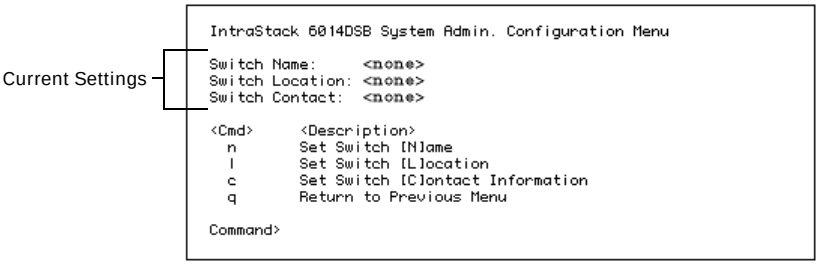


Figure 5-4 System Administration Configuration Menu

Current Settings

Table 5-4 explains each setting on the System Administration Configuration Menu.

For information on using the menu, see:

- "Changing System Administration Information" — page 5-11

Table 5-4 System Administration Configuration Menu Settings

Setting	Description
Switch Name	The name of the IntraStack (up to 64 characters, including spaces).
Switch Location	The location where the IntraStack is physically located (up to 64 characters, including spaces).
Switch Contact	The name of the person or entity responsible for the IntraStack (up to 64 characters, including spaces).

Changing System Administration Information

To change the switch's name/location/contact information:

1. Open the System Administration Configuration Menu by typing a in the Configuration Menu.

2. Type the command letter of the item to be changed in the System Administration Configuration Menu.

3. Type the information at the prompt.

   See Table 5-4 for a description of each parameter.

   S Important: Each parameter is limited to 64 characters, including spaces.

   To cancel a selected option, press ctrl-c at the command prompt.

4. Press return.

   The switch's system administration information is changed.

   To quit and return to the Configuration Menu, type q.

System IP Configuration

This menu displays and allows you to change the information needed to access the IntraStack over the network (in-band management).

To access the System IP Configuration Menu, type i in the Configuration Menu. A screen similar to Figure 5-5 appears.

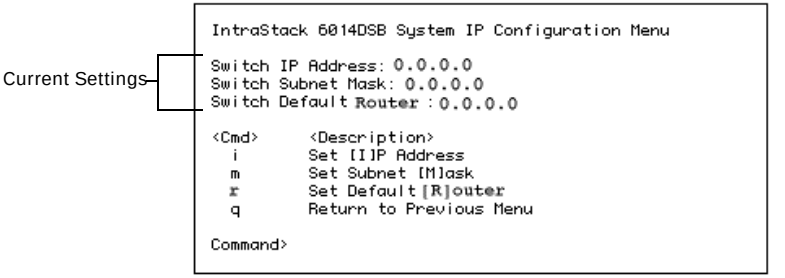


Figure 5-5 System IP Configuration Menu

S Important: By default, each address is set to 0.0.0.0.

Current Settings

Table 5-5 explains each setting on the System IP Configuration Menu.

For information on using the menu, see:

- "Changing System IP Information" on page 5-13

Table 5-5 System IP Configuration Menu Settings

Setting	Description
Switch IP Address	The IntraStack's IP (Internet Protocol) address.
Switch Subnet Mask	The address of the subnet mask on which the IntraStack is located.
Switch Default Router	The address of the IntraStack's default router.

Changing System IP Information

To change the IntraStack's IP address, subnet mask, or default router information:

1. Open the System IP Configuration Menu by typing i in the Configuration Menu.
2. Type the command letter of the option you want to change.
3. Type the new address at the prompt.

   See Table 5-5 for a description of each address.

   S Important: Follow the format: *number*.*number*.*number*.*number*.

   To cancel, press ctrl-c at the command prompt.
4. Press return.

   The switch's IP information is changed.

   To quit and return to the Configuration Menu, type q.

Bootstrap Configuration

This menu displays and allows you to change the bootstrap parameters used for loading the switch's software at startup and for downloading a new version of software when one is issued.

To access the Bootstrap Configuration Menu, type b in the Configuration Menu. A screen similar to Figure 5-6 appears.

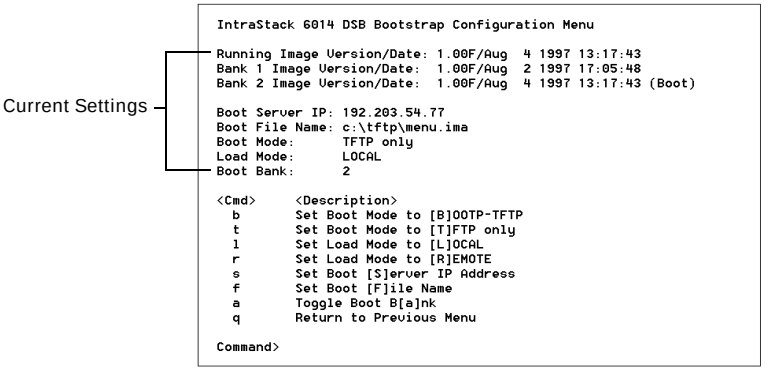


Figure 5-6 BootStrap Configuration Menu

S Important: The IntraStack's Load Mode default setting is Local.

When the IntraStack is first powered on, it loads its software via one of two methods: locally (via its internal flash memory; this is the default setting) or remotely (over the network).

Image Banks

The IntraStack has two areas (or "banks") where its runtime software is stored:

- Boot Bank — the bank that is used during the switch's system boot-up. The switch searches for valid code in this bank at startup.
- Destination Bank — the bank that receives the new version of runtime code when its downloaded.

The Boot Bank and the Destination Bank are each referred to by a number (1 or 2). To set the banks' numbers, see "Changing the Boot Bank Number" on page 5-17.

Current Settings

Table 5-6 explains each setting on the Bootstrap Configuration Menu.

For information on using the menu, see:

- "Changing the Boot Bank Number" — page 5-17
- "Executing Software Locally" — page 5-17
- "Loading Software Remotely" — page 5-18

S Important: For information on performing a software upgrade, see "Performing a Software Upgrade" on page 5-40.

Table 5-6 Bootstrap Configuration Menu Settings

Setting	Description
Running Image Version/Date	The version and compilation date of runtime code that is currently running on the IntraStack. This should be the same as the Boot Bank.
Bank 1 Image Version/ Date	The version and compilation date of runtime code that is currently stored on the IntraStack. *Note:* The image bank is where the runtime code is stored; the IntraStack 6014DSB has two image banks: Boot Bank and Destination Bank.
Bank 2 Image Version/ Date	The version and compilation date of runtime code that is currently running on the IntraStack.
Boot Server IP	The IP address of the boot server providing BootP/TFTP capabilities on your network.
Boot File Name	The name of the software file and its network path.

Setting	Description
Boot Mode	The method for requesting the software image file from the network. BootP-TFTP — sets the IntraStack to request an IP address from a BootP server AND to download the software's image file through TFTP (Trivial File Transfer Protocol). Important: To use this option, the switch's IP address must be set to 0.0.0.0 and the Load Mode must be set to Remote. TFTP ONLY — sets the IntraStack to only download the software image file through TFTP (an IP address is not requested). Important: To use this option, the switch must already have an assigned IP address and the Load Mode must be set to Remote.
Load Mode	The current method for loading the IntraStack's software. Local — executes the software image file from the switch's internal flash memory (default setting; the switch automatically reverts to this setting after downloading a new software file). Remote — loads the software image file from a server on the network. Important: To use the remote option, you must select BootP-TFTP or TFTP as the Boot Mode.
Boot Bank	The number of the image bank being used to load the IntraStack's software. *Note:* The image bank is where the runtime code is stored; the IntraStack 6014DSB has two image banks: Boot Bank and Destination Bank.

Changing the Boot Bank Number

The IntraStack's two image banks (Boot Bank and Destination Bank) are each assigned a number (1 or 2).

By default, the Boot Bank is assigned Bank number 1; the Destination Bank is Bank number 2.

To change the Boot Bank's number:

1. Open the Bootstrap Configuration Menu by typing b in the Configuration Menu.
2. Type a in the Bootstrap Configuration Menu to toggle the Boot Bank from 1 to 2 (or vice versa).

   The Boot Bank's number is changed. Its new number is displayed at the top of the screen (next to Boot Bank:).

   The Destination Bank's number is also changed; it becomes the number not assigned to the Boot Bank.

Executing Software Locally

To set the IntraStack to boot (execute its software) locally from its internal flash memory:

1. Make sure the IntraStack is configured with a valid IP address.
2. Open the Bootstrap Configuration Menu by typing b in the Configuration Menu.
3. Type l in the Bootstrap Configuration Menu to set the Load Mode to Local.

   The IntraStack is set to load its software locally from its internal flash memory. This occurs each time the switch is powered on or is reset.

Loading Software Remotely

To set the IntraStack to boot (download its software) over the network from a remote server:

1. Open the Bootstrap Configuration Menu by typing b in the Configuration Menu.
2. Type s in the Bootstrap Configuration Menu to select the option Set Boot Server IP Addr ess
3. Type the IP address of the remote boot server containing the software image file for the IntraStack at the prompt, then press return.
4. Type r to set the Load Mode to Remote.
5. Type f to select the option Set File Name.
6. Type the software's file name and network path at the prompt.
7. Press return.

   The IntraStack is set to download its software remotely from the network. This occurs each time the switch is powered on or is reset.

SNMP Configuration

This menu displays and allows you to change the IntraStack's SNMP (Simple Network Management Protocol) parameters. With these parameters, you can configure the switch's read and write community strings, set the switch to generate traps, and determine which management stations on your network can receive traps.

To access the SNMP Configuration Menu, type n in the Configuration Menu. A screen similar to Figure 5-7 appears.

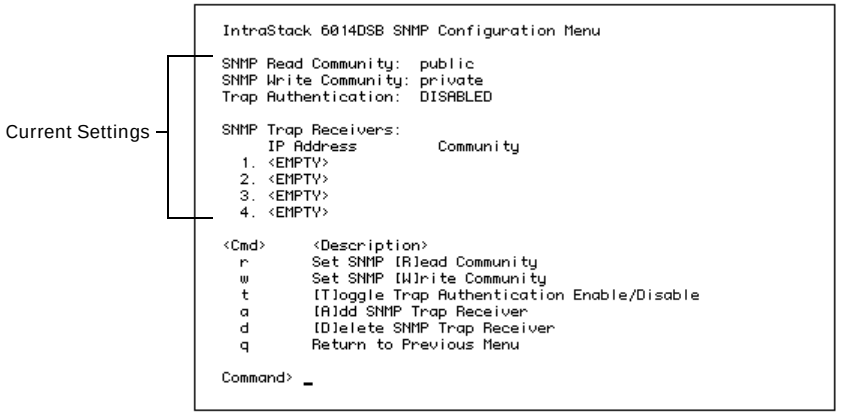


Figure 5-7 SNMP Configuration Menu

Current Settings

Table 5-7 explains each setting on the SNMP Configuration Menu.

For information on using the menu, see:

- "Changing Community Strings"— page 5-21
- "Enabling Traps"— page 5-21
- "Adding a Trap Receiver"— page 5-22
- "Deleting a Trap Receiver"— page 5-22

Table 5-7 SNMP Configuration Menu Settings

Setting	Description
SNMP Read Community	The IntraStack's SNMP read community string. The read community string is a single word that defines access rights for reading SNMP data objects. The default setting is public.
SNMP Write Community	The IntraStack's SNMP write community string. The write community string is a single word that defines access rights for writing SNMP data objects. The default setting is private.
Trap Authentication	The status of the SNMP agent to generate authentication traps. The default setting is disabled.
SNMP Trap Receivers	The IP addresses of the network management stations that can receive traps from the switch. Normally, these addresses are the same as your network management software systems' IP address(es). s Important: A maximum of four traps receivers is allowed.

Changing Community Strings

To change the IntraStack's community strings:

1. Open the SNMP Configuration Menu by typing n in the Configuration Menu.
2. Type r to change the read community string or w to change the write community string.
3. Type a new community string at the prompt.

   See Table 5-7 for a description of read and write community strings.

   To cancel a selected option, press ctrl-c at the command prompt.
4. Press return.

   To quit and return to the Configuration Menu, type q.

Enabling Traps

The IntraStack can be set to generate authentication traps. Authentication traps are messages sent across the network to an SNMP network management station. They alert you when someone without access rights attempts to change the device's MIB information.

To set the IntraStack to generate traps:

1. Open the SNMP Configuration Menu by typing n in the Configuration Menu.
2. Type t toggle trap authentication from disabled to enabled.

   To cancel, press ctrl-c at the command prompt.

   To quit and return to the Configuration Menu, type q.

Adding a Trap Receiver

Trap receivers are the network management stations designated to receive traps from the switch when they occur.

S Important: The maximum number of trap receivers that can be set is four.

To add a trap receiver entry:

1. Open the SNMP Configuration Menu by typing n in the Configuration Menu.
2. Type a to Add a Trap Receiver
3. Type the IP address of the network management station you want to receive traps, then press return.

   To cancel, press ctrl-c.
4. Type the trap receiver's community string at the prompt, then press return.

   The trap receiver entry is added.

   To return to the Configuration Menu, type q.

Deleting a Trap Receiver

To delete a trap receiver entry:

1. Open the SNMP Configuration Menu by typing n in the Configuration Menu.
2. Type d to Delete a Trap Receiver
3. Type the number of the receiving network management station entry to be deleted, then press return.

   The trap receiver entry is deleted.

   To return to the Configuration Menu, type q.

Port Configuration

This menu allows you to manually configure each of the IntraStack's ports and any installed MII modules for speed, connection, link mode, and auto-negotiation.

It also provides an overview of the IntraStack system's current operating status (whether any expansion units are installed and are operating and the operating status of each of the ports in the stack).

The default parameters for each of the IntraStack 6014DSB's port are:

- auto-negotiation — enabled
- port speed — 100Mbps
- link mode — full duplex

To access the Port Configuration Menu, type p in the Configuration Menu. A screen similar to Figure 5-8 appears.

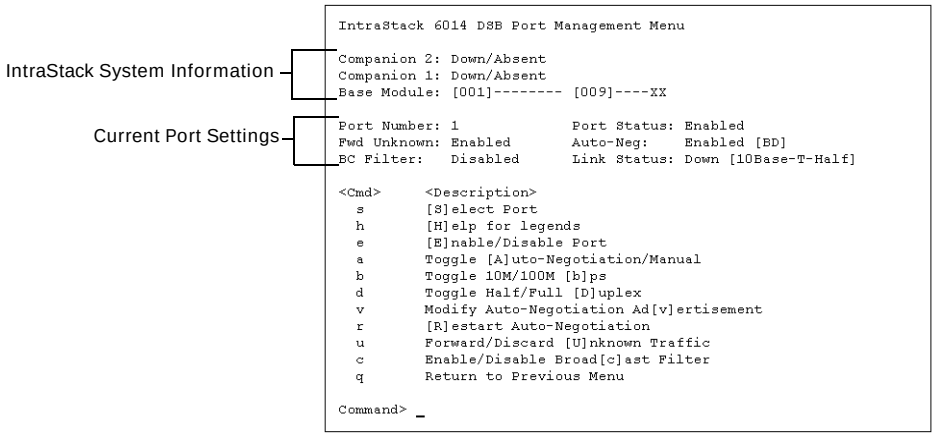


Figure 5-8 Port Configuration Menu

IntraStack System Information

Table 5-8 on page 5-24 explains the IntraStack system information. For directions on using this menu to view IntraStack system information, see "Viewing IntraStack System Information" on page 6-5.

Current Port Settings

The current port for which statistics are displayed is shown at the top of the screen (next to "Port Number:").

Table 5-8 explains each setting on the Port Configuration Menu.

For information on using the Port Configuration Menu, see:

- "Enabling/Disabling a Port" — page 5-26
- "Configuring Full Duplex Mode" — page 5-26
- "Configuring Auto Negotiation" — page 5-27

Table 5-8 Port Management Menu Settings

Setting	Description
Companion 2	The status of the second installed expansion unit. Down/Absent — an expansion unit is not operating or is not installed. If an expansion unit is installed, port symbols representing the status of each of the unit's ports will be displayed. See the options listed in this table under "Base Module."
Companion 1	The status of the first installed expansion unit. The options are identical to those of Companion 2.
Base Module	The status of the IntraStack 6014DSB (base unit). This field displays symbols for each of the switch's 12 ports. List of Port Symbols: X — no port exists. - (negative symbol) — a port exists but there is no link on the port. ! — the port is disabled. B — the port is in a blocking state. S — the port is in a listening state. R — the port is in a learning state. + — the port is in a forwarding state. Important: Type h "Help for Legends" in the Port Management Menu for a list of the port symbols.
Port Number	The number of the port for which parameters are shown.

Setting	Description
Fwd Unknown	The status of the port's ability to forward packets with an unknown address. Enabled — the port will forward packets with unknown addresses. Disabled — the port will not forward packets with unknown addresses. Important: If all ports Fwd Unknown status is set to Disabled, all packets with unknown addresses will be discarded and not forwarded.
BC Filter	The status of the port's capability to forward broadcast packets. Enabled — broadcast packets will be discarded. Disabled — broadcast packets will be processed normally.
Port Status	The administrative status of the port's connection. Enabled — the port is enabled and can receive and forward packets. Disabled — the port is disabled and cannot receive packets. *Note:* If the port is disabled, the port will not receive any packets, even if the port's Link Status is UP.
Auto-Neg	The status of the port's auto-negotiation capability. This field also displays the port's speed and link mode capability with the use of a combination of four characters: ABCD. ABCD — capable of all combinations of speed and link mode (i.e., 100Base-TX full duplex, 100Base-TX half duplex, 10Base-T full duplex, and 10Base-T half duplex). Important: Type h "Help for Legends" in the Port COnfiguration Menu for a complete list of all the combinations available.
Link Status	The status of a network device's connection to the port and the speed and mode it is using. Up — a network device is powered on and is properly connected to the port. Down — there is no network device connected to the port.

Enabling or Disabling a Port

The enabling or disabling of a port is a manual operation that can be used to isolate network devices possibly causing problems on the network or to prevent unauthorized use of a port or station.

To enable or disable a port:

1. Open the Port Management Menu by typing p in the Configuration Menu.
2. Select the port to be enabled or disabled by typing s, entering the port's number, and pressing return.
3. Type e to toggle the port's connection to enabled or disabled, as desired.

   The port's status is changed. The new status is displayed at the top of the screen next to Port Status:.

Configuring Full Duplex Mode

Full duplex mode allows a port to transmit and receive at the same time.

S Important: To use full duplex mode, the device to which the port is connected must support and be configured for full duplex mode.

To configure full duplex mode:

1. Open the Port Management Menu by typing p on the Configuration Menu.
2. Select the port to be configured for full duplex mode by typing s, entering the port's number, and pressing return.
3. Type d to toggle the port's mode to full duplex. The port's mode is changed and is displayed at the top of the screen next to Link Status.

Configuring Auto Negotiation

Auto-negotiation is an optional feature of the Fast Ethernet standard that allows two devices on a common segment to communicate their capabilities, allowing the devices to determine their highest common speed and best communication parameters.

The two devices involved in auto-negotiation are the network card installed in a computer or device and the IntraStack switch to which the device is connected.

Communication between the two devices occurs when both devices are powered on, the cable connection between them is valid, and the network operating system software is running.

Options Negotiated

The options negotiated during auto-negotiation are:

- Ethernet type (100Base-TX Fast Ethernet or 10Base-T Ethernet)
- Duplex mode (full or half)

S Important: By default, all of the IntraStack 6014DSB's ports are set to Auto-Negotiation enabled.

To configure an IntraStack's port for auto-negotiation:

1. Open the Port Management Menu by typing p in the Configuration Menu.
2. Select the port to be enabled or disabled by typing s, entering the port's number, and pressing return.
3. Type a to toggle the port's auto-negotiation status to enabled.

   The auto-negotiation status is changed and is displayed at the top of the screen next to Auto-Neg:.

Spanning Tree Configuration

This menu allows you to view and configure the IntraStack's Spanning Tree parameters.

The IntraStack is shipped with Spanning Tree enabled on all ports.

S Important: Refer to Chapter 7,"Advanced Management" for information on using this menu to configure the Spanning Tree Protocol.

Traffic Monitoring Configuration

This menu allows you to prepare the IntraStack 6014DSB for traffic monitoring by an external traffic analyzer.

S Important: Refer to Chapter 6,"Status Monitoring,Traffic, and Statistics" for directions on using this menu to monitor traffic on the IntraStack.

To access the Traffic Monitoring Configuration Menu:

- Type m in the Local Management Interface Main Menu. A screen similar to Figure 5-9 appears:

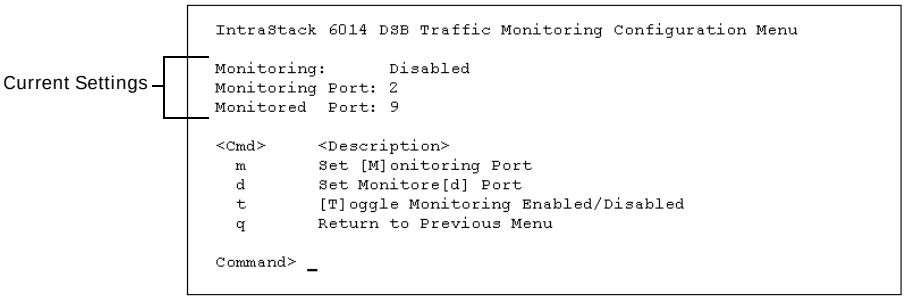


Figure 5-9 Traffic Monitoring Configuration Menu

Current Settings

Table 5-9 explains each setting on the Traffic Monitoring Configuration Menu.

For information on using the menu, see:

- "Preparing for Traffic Monitoring" — page 6-12

Table 5-9 Traffic Monitoring Configuration Menu Settings

Setting	Description
Monitoring	The status of traffic monitoring. Enabled — the IntraStack is set to monitor traffic with an external traffic analyzer. Disabled — the IntraStack is NOT set to monitor traffic with an external traffic analyzer.
Monitoring Port	The port that has the traffic analyzer connected to it. This port receives all the traffic information generated by the monitored port.
Monitored Port	The port currently being monitored. This port sends all traffic information to the monitoring port.

Forwarding Database/Security Configuration

This menu allows you to view and search for addresses in the IntraStack's MAC Forwarding Table. It also allows you to enable the Duplicate-IP Address Trap and to view the IntraStack's trap log.

The MAC Forwarding Table is a table of node addresses that the IntraStack automatically builds by listening to and learning the information that is broadcast when a new node logs on. The switch checks the source and destination addresses as packets pass through the switch and records the source address information in the table.

The switch uses the information in this table to decide whether a frame should be forwarded or filtered. Each entry consists of the MAC address of the device and an identifier for the port on which it was received.

Δ *Note:* The MAC address table can hold a maximum of 8,000 entries.

To access the Forwarding DB/Security Configuration Menu, type f in the Configuration Menu. A screen similar to Figure 5-10 appears.

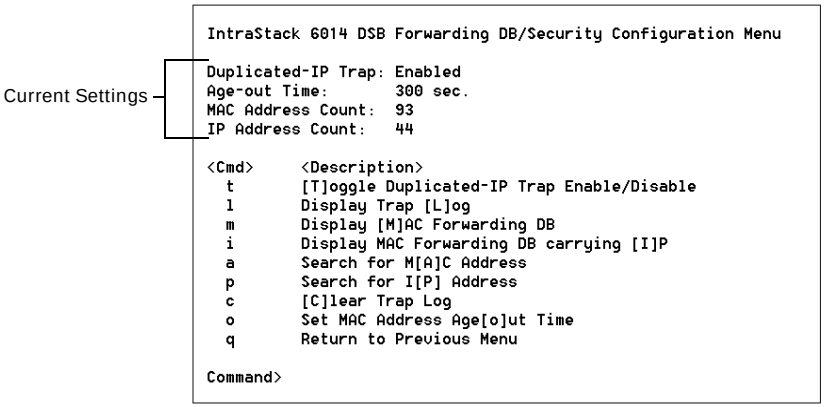


Figure 5-10 Forwarding DB/Security Configuration Menu

Current Settings

Table 5-10 explains each setting on the Forwarding DB/ Security Configuration Menu.

For information on using the menu, see:

- "Displaying the MAC Address Table" — page 5-33
- "Searching the MAC Address Table" — page 5-33
- "Setting the MAC Address Age-Out Time" — page 5-34
- "Enabling the Duplicated-IP Trap" — page 5-34
- "Viewing the Trap Log" — page 5-35

Table 5-10 Security Configuration Menu Settings

Setting	Description
Duplicated-IP Trap	The status of the Duplicated-IP Trap. Enabled — the IntraStack sends a trap to the receiving trap stations if a duplicate IP address is detected. Disabled — the duplicate-IP Trap is disabled. The IntraStack does NOT send a trap if a duplicate IP address is detected.
Age-Out Time	The current age-out time for retaining addresses in the table. This is the number of seconds an address remains in the table after it is learned by the switch.
MAC Address Count	The number of entries currently in the MAC Address Table.
IP Address Count	The number of entries in the MAC Address Table that contain a corresponding IP address.

Displaying the MAC Address Table

The MAC address table can be displayed with or without IP addresses. To view the MAC address table:

1. Open the Forwarding DB/Security Configuration Menu by typing f in the Configuration Menu.
2. Type m to display the MAC address table with only MAC addresses and their corresponding ports.

   Type i to display the MAC address table with MAC addresses, their corresponding IP addresses, and their corresponding ports.
3. View the information that is displayed.
4. Press any key on your keyboard to exit the MAC address table and return to the Security Configuration Menu.

Searching the MAC Address Table

The MAC address table can be searched by MAC address or by IP address. To search the MAC address table for a specific MAC address or an IP address:

1. Open the Forwarding DB/Security Configuration Menu by typing f in the Configuration Menu.
2. Type a to search for a MAC address.

   Type p search for an IP address.
3. Type the MAC address or the IP address you want to search for at the prompt.
4. Press return.

   The address, if located, is displayed. If the address is not located, a message appears stating so.

Setting the MAC Address Age-Out Time

This option sets the Age-out Time for the MAC Forwarding Table.

The Age-Out Time is the number of seconds that addresses remain in the table after being learned by the IntraStack. The default is 900 seconds.

To set the MAC address Age Out Time:

1. Open the Forwarding DB/Security Configuration Menu by typing f in the Configuration Menu.
2. Type o to set the MAC Address Age-out Time.
3. Enter the new age-out time (in seconds) at the prompt.
4. Press return.

   The MAC Address Age-Out Time is changed and is displayed at the top of the screen next to "Age-out Time".

Enabling the Duplicated-IP Trap

The Duplicated-IP Trap, if enabled, sends a trap to the trap receiving stations on the network when the IntraStack receives a duplicate IP address.

To enable the Duplicated-IP Trap:

1. Open the Forwarding DB/Security Configuration Menu by typing f in the Configuration Menu.
2. Type t to toggle the Duplicated-IP Trap to enabled.

   The Duplicate-IP Trap is enabled. Its status appears at the top of the screen next to "Duplicate-IP Trap:

Viewing the Trap Log

The trap log displays all of the traps that the IntraStack has generated since the last time the log was cleared.

S Important: The trap log holds a maximum of 128 entries.

1 Open the Forwarding DB/Security Configuration Menu by typing f in the Configuration Menu.

2 Type l to display the trap log.

The trap log appears, displaying the last 128 traps the IntraStack has generated (or the number of traps the switch has generated since the last time the log was cleared).

3 Press any key on your keyboard to exit the trap log and return to the Security Configuration Menu.

4 To clear the log, type c in the Security Configuration Menu.

System Clock Configuration

This menu allows you to set the IntraStack's real-time system clock with the date, time, and daylight savings time capability.

Δ *Note:* This clock only needs to be set once. The clock retains its settings during power cycles, resets, and power outages.

To change system clock information, type k in the Configuration Menu. A screen similar to Figure 5-11 appears.

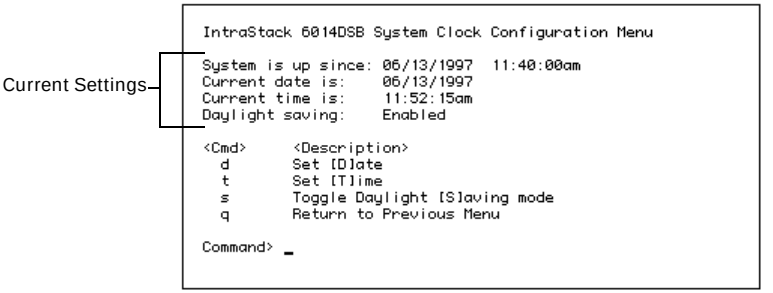


Figure 5-11 System Clock Configuration Menu

Current Settings

Table 5-11 explains each setting on the System Clock Configuration Menu.

For information on using the menu, see:

o "Setting the Clock"— page 5-37

Table 5-11 System Clock Configuration Settings

Setting	Description
System is up since	The date and time the IntraStack was last powered on or reset.
Current date is	The current date in mm/dd/yyyy format.
Current time	The current time in hh/mm/ss format.

Setting	Description
Daylight saving	The status of daylight savings mode.

Setting the Clock

To set the IntraStack's internal clock:

Δ *Note:* The IntraStack's clock only needs to be set once. The clock retains its settings during power cycles, resets, and power outages.

1. Open the System Clock Configuration Menu by typing k in the Configuration Menu.
2. Type d to set the date or t to set the time.
3. Type the new date or time at the prompt, in the following formats:
   - date: mm/dd/yyyy
     (for example: 01/01/1998)
   - time: hh:mm:ss
     (for example: 08:10:30

   To cancel this option, press ctrl-c.
4. Press return.

   The switch's system clock information is changed.

   To quit and return to the Configuration Menu, type q.

TFTP Image File Downloading Configuration

This menu allows you to download a new software image file for the IntraStack when one is issued. It allows you to download a new version of the switch's software without interrupting the switch's current operation.

When Asanté issues a new version of software for the IntraStack, you can obtain it from Asanté's Word Wide Web site or by contacting Asanté's Technical Support (see Appendix E, "Technical Support").

To download a new image file, type g in the Configuration Menu. A screen similar to Figure 5-12 appears.

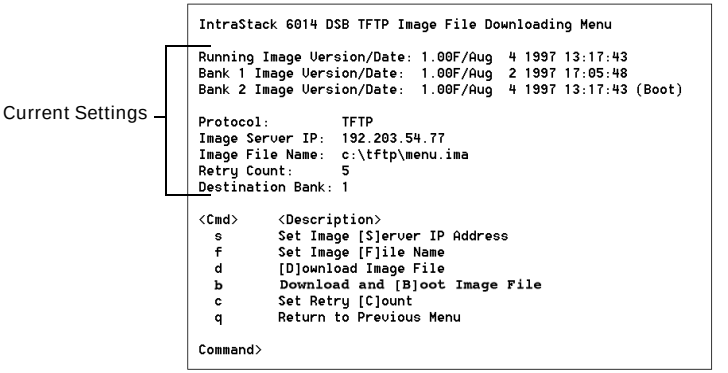


Figure 5-12 Image Downloading Menu

Current Settings

Table 5-12 explains each setting on the Image Downloading Menu. For information on using the menu, see:

- "Performing a Software Upgrade at Runtime" — page 5-40

Table 5-12 Image Downloading Menu Settings

Setting	Description
Running Image Version/Date	The version and compilation date of runtime code that is currently running on the IntraStack. This should be the same as the Boot Bank.
Bank 1 Image Version/ Date	The version and compilation date of runtime code that is currently stored on the IntraStack. *Note:* The image bank is where the runtime code is stored; the IntraStack 6014DSB has two image banks: Boot Bank and Destination Bank.
Bank 2 Image Version/ Date	The version and compilation date of runtime code that is currently running on the IntraStack.
Protocol	The current method being used to download a software image file from the network. This protocol is always set to TFTP.
Image Server IP	The IP address of the network server containing the IntraStack's software image file.
Image File Name	The software image file's name and network path.
Retry Count	The number of attempts the switch will make to download the image file.
Destination Bank	The number of the destination bank to where the software file will be downloaded and stored.

Performing a Software Upgrade at Runtime

The software image file must be downloaded from a network management station on your network that contains TFTP capabilities.

To upgrade the IntraStack's software:

- Important: Make sure the switch is configured with an IP address.

1. Open the TFTP Image File Downloading Configuration Menu by typing g in the Configuration Menu.
2. Type s to set the Image Server Addr .ess
3. Enter the IP address of the server containing the image file at the prompt, then press return.
4. Type f to set the Image File Name.
5. Enter the image file's name and network path at the prompt, then press return.
6. Type c to set the Retry Count.
7. Enter the number of attempts the switch will make to download the file, then press return.
8. Type d to Download the Image File to the Destination Bank (this option allows you to change the boot bank at a later time and use the Reset Menu to schedule a reset, at which time the new software will be used).

   or

   Type r to Download the Image File and Reset the IntraStack (this option immediately boots the IntraStack with the new version of software).
9. Type q to return to the Configuration menu.

System Reset Options

The System Reset Options Menu allows you to reset the IntraStack by performing a "warm" reboot of the switch. It also allows you to schedule a reset up to 24 hours in advance.

To reset the IntraStack, type r in the Configuration Menu. A screen similar to Figure 5-13 appears.

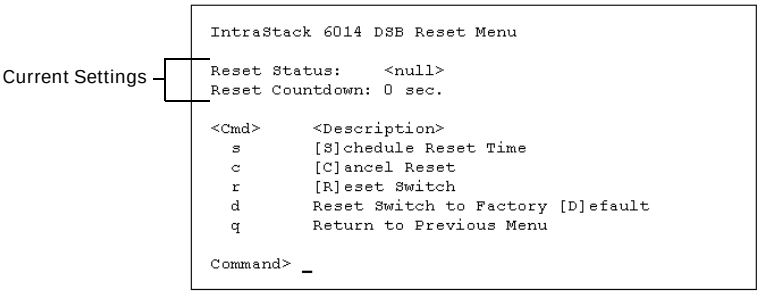


Figure 5-13 Reset Menu

Current Settings

Table 5-11 explains each setting on the Reset Menu.

For information on using the menu, see:

- "Resetting the IntraStack" — page 5-42
- "Scheduling a Reset" — page 5-42

Table 5-13 Reset Menu Settings

Setting	Description
Schedule Reset Time	The number of seconds until the scheduled reset.
Cancel Reset	Cancels the scheduled reset.
Reset Switch	Resets the IntraStack immediately.
Reset Switch to Factory Default	Resets the IntraStack and resets the switch's EEPROM to the factory default.

Resetting the IntraStack

When you reset the IntraStack via the Configuration Menu, the switch reverts to its factory default settings.

Δ *Note:* See "Factory Default Settings" on page 1-11 for a description of the default configuration settings.

To reset the IntraStack:

1. Open the Reset Menu by typing r in the Configuration Menu.
2. Type r to reset the switch.
3. Press return.
4. Type y to confirm the reset.
   Type n to cancel the reset.
   The IntraStack is reset to its default settings.

Scheduling a Reset

You can schedule the IntraStack to automatically perform a reset up to 24 hours in advance.

To schedule a reset:

1. Open the Reset Menu by typing r in the Configuration Menu.
2. Type s to schedule a reset time.
3. Enter the number of seconds the switch will wait before it automatically resets.

S Important: The maximum number of seconds that can be entered is 86400 (24 hours).

4. Press return.
   The IntraStack is set to automatically reset after the number of seconds that are specified elapse.

System Log

This menu allows you to view the IntraStack's System Log. The System Log records and displays any major system events that have occurred on the IntraStack (such as a fatal error, etc.).

To view system log information, type l from the Configuration Menu. A screen similar to Figure 5-14 appears.

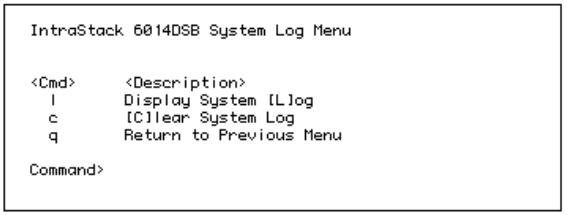


Figure 5-14 System Log Menu

For information on using the menu, see:

- "Viewing the System Log" — page 5-43
- "Clearing the System Log" — page 5-44

Viewing the System Log

1. Open the System Log Menu by typing l in the Configuration Menu.
2. Type l to display the current system log.
   A screen similar to Figure 5-15 appears.

```
 No. Date       Time       Event
  1. 08/01/1997 04:08:52pm System up
  2. 08/01/1997 04:26:07pm Module 0 init
  3. 08/01/1997 04:26:09pm ColdStart_Trap Called
  4. 08/01/1997 04:26:10pm System up
  5. 08/01/1997 05:57:55pm Module 0 init
  6. 08/01/1997 05:57:58pm ColdStart_Trap Called
  7. 08/01/1997 05:57:59pm System up
  8. 08/02/1997 03:30:21pm Module 0 init
  9. 08/02/1997 03:30:24pm ColdStart_Trap Called
 10. 08/02/1997 03:30:24pm System up
 11. 08/02/1997 04:14:09pm Module 0 init
 12. 08/02/1997 04:14:12pm ColdStart_Trap Called
 13. 08/02/1997 04:14:13pm System up
 14. 08/02/1997 04:24:08pm Module 0 init
 15. 08/02/1997 04:24:11pm ColdStart_Trap Called
 16. 08/02/1997 04:24:12pm System up
 17. 08/02/1997 04:26:18pm Module 0 init
 18. 08/02/1997 04:26:20pm ColdStart_Trap Called
 19. 08/02/1997 04:26:21pm System up
 20. 08/02/1997 04:26:37pm Module 0 init
 21. 08/02/1997 04:26:39pm ColdStart_Trap Called
 22. 08/02/1997 04:26:40pm System up
Press any key to continue...
```

Figure 5-15 System Log Display

The system log displays any major system events that have occurred on the IntraStack.

If no major events have occurred,"System up" messages are displayed.

Δ *Note:* The System Log holds a maximum of 64 entries.

3 Press any key on your keyboard to display the next page of System Log information.

To exit this screen, press ctrl-c.

Clearing the System Log

1 Open the System Log Menu by typing l in the Configuration Menu.

2 Type c to clear the current System Log.

The System Log is cleared.

Set Idle Time Out

The Set Idle Time-Out option allows you to determine the Telnet idle time-out period.

If a Telnet connection to the IntraStack remains idle for the number of specified time-out minutes, the remote Telnet connection to the switch is automatically disabled.

To set the Telnet Idle Time Out period:

1. Type t in the Configuration Menu.

   The current idle time is displayed in minutes, as shown in Figure 5-16.

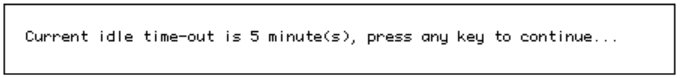


Figure 5-16 Current Idle Time Out command line

2. Type any key to continue.

   The following command line appears at the bottom of the screen.

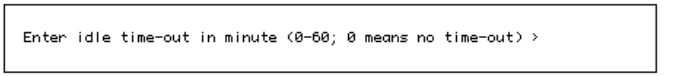


Figure 5-17 Set Idle Time Out command line

3. Enter the number of minutes for the time-out period at the prompt.

   Δ *Note*: The default and recommended time-out period is 20 minutes.

   To exit this option without making any changes to the current idle time out, press ctrl-c.

4. Press return.

   The Telnet idle time-out period is changed.

   Type q to exit and return to the Configuration Menu.

Changing the Password

The Change Password option allows you to change the password needed to access the Configuration Menu.

- Important: The factory default password is Asante. The password is case--sensitive.

To change the current Local Management Interface (Console) password:

1. Type c in the Configuration Menu.
   The following command line appears at the bottom of the screen:

```
Enter Password:
```

Figure 5-18 Set Password command line

2. Type a new password at the "Enter New Password" prompt.
   - Important: The password is case-sensitive. The password must be a minimum of one character and a maximum of 20 characters in length. The password takes any ASCII code.
3. Press return.
4. Type the new password again at the confirmation password prompt.
   To cancel this change, type ctrl-c.
5. Press return.
   The password is changed.
   Type q to return to the Configuration Menu.

Statistics Menu

The Statistics menu displays current statistics for the IntraStack on a per-port basis. The statistics displayed include traffic, collisions, good frames, bad frames, and FCS errors.

S Important: Refer to Chapter 6,"Status Monitoring,Traffic, and Statistics" for information on using this menu to view statistics.

6

Status Monitoring, Traffic, and Statistics

This chapter describes how to view the IntraStack 6014DSB's current operating information, system information, and statistics It also explains how to prepare the IntraStack for traffic monitoring with an external traffic analyzer.

This chapter contains the following sections:

Monitoring the IntraStack

Viewing the Current Operating Information

The IntraStack's current operating information can be viewed by accessing the General Information Menu within the switch's Local Management Interface.

To view the IntraStack's current operating information:

1 Access the IntraStack's Local Management Interface.

- Important: Refer to Chapter 4,"Setting Up For Management" for instructions on how to connect to the Local Management Interface.

2 Type g in the Local Management Interface Main Menu. A screen similar to Figure 6-1 appears:

```
IntraStack 6014 DSB General Information Menu

Software Version
  Running Image Version/Date: 1.00F/Jul 29 1997 13:23:25
  Bank 1 Image Version/Date:  1.00D/Jul 29 1997 13:21:13
  Bank 2 Image Version/Date:  1.00F/Jul 29 1997 13:23:25 (Boot)
Administration Information
  Switch Name:      <none>
  Switch Location: <none>
  Switch Contact:  <none>
System Information
  DRAM Size:        8MB
  Flash Size:       1.5MB
  EEPROM Size:      32KB
Switch MAC Address, IP Address, Subnet Mask and Gateway
  MAC Address:      00:00:94:D3:00:00
  IP Address:       192.203.54.228
  Subnet Mask:      255.255.255.0
  Gateway:          0.0.0.0
Bootstrap Configuration
  Boot Load Mode:  LOCAL
  TFTP Server:      192.203.54.77
  Boot File Name:  c:\tftp\agent.ima
Press any key to continue..._
```

Figure 6-1 General Information Menu

Table 6-1 describes each parameter. To exit the General Information Menu, press the space bar on your keyboard.

Table 6-1 General Information Menu Parameters

Setting	Description
Running Image Version/Date	The version and compilation date of runtime code that is currently running on the IntraStack. *Note:* This should be the same as the Boot Bank.
Bank 1 Image Version/Date	The version and compilation date of runtime code that is currently stored on the IntraStack. *Note:* The image bank is where the runtime code is stored; the IntraStack 6014DSB has two image banks: Boot Bank and Destination Bank.
Bank 2 Image Version/Date	The version and compilation date of runtime code that is currently running on the IntraStack.
Switch Name	The name of the IntraStack.
Switch Location	The location of where the IntraStack is physically located.
Switch Contact	The name of the person responsible for the IntraStack.
DRAM Size	The size, in megabytes (MB), of the IntraStack's Dynamic Random Access Memory.
Flash Size	The size, in MB, of the IntraStack's flash memory. Flash memory is non-volatile RAM.
EEProm Size	The size, in kilobytes, of the IntraStack's EEPROM.
MAC Address	The IntraStack's hardware address. *Note:* This address cannot be changed.
IP Address	The IntraStack's IP (Internet Protocol) address.
Subnet Mask	The IntraStack's IP subnet mask.
Gateway	The IP address of the default gateway router to which the IntraStack belongs
Boot Load Mode	The current method the IntraStack is using to load its software.

Setting	Description
TFTP Server	The IP address of the TFTP server configured for the IntraStack.
Boot File Name	The name and network path of the IntraStack's software file.

Viewing IntraStack System Information

You can view system information on the IntraStack 6014DSB and any installed expansion modules by accessing the Port Management Menu within the Local Management Interface.

The system information displayed includes a status of the installed expansion modules and a status of each port within the entire IntraStack stack.

To view IntraStack system information:

1. Access the IntraStack's Local Management Interface.

   S Important: Refer to Chapter 4,"Setting Up For Management" for instructions on how to connect to the Local Management Interface.

2. Type c in the Local Management Interface Main Menu to open the Configuration Menu.

   The "Enter Password" prompt appears.

3. Type your password at the prompt, then press return.

4. Type p to open the Port Configuration Menu.

   A screen similar to Figure 6-2 appears.

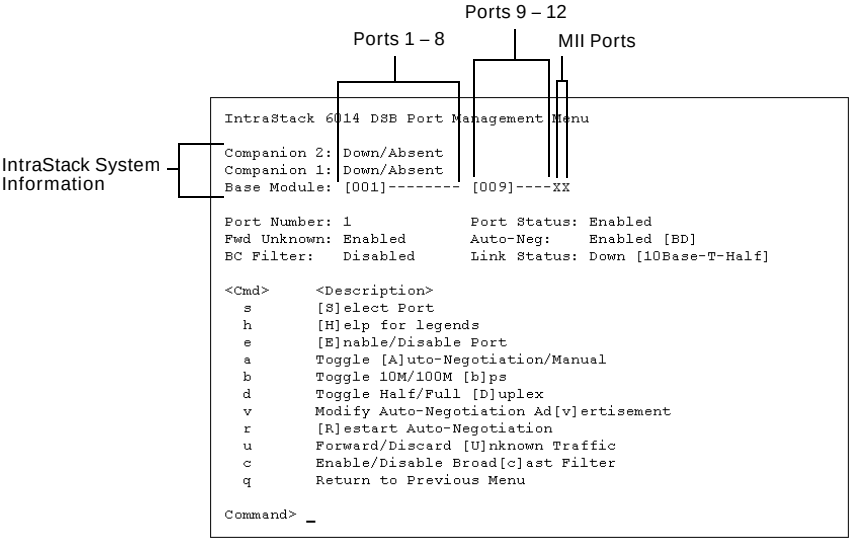


Figure 6-2 Port Configuration Menu

The IntraStack system information is displayed at the top of the screen, as highlighted in Figure 6-2.

Table 6-2 describes the IntraStack system information.

Table 6-2 IntraStack System Information

Setting	Description
Companion 2	The status of the second installed expansion unit. Down — expansion unit is not operating. Absent — no expansion unit is installed. If an expansion unit is installed, port symbols representing the status of each of the unit's ports will be displayed. See the options listed in this table under "Base Module."
Companion 1	The status of the first installed expansion unit. The options are identical to those of Companion 2.

Setting	Description
Base Module	The status of the IntraStack 6014DSB (base unit). This field displays status symbols for each of the switch's 12 ports. Port Symbols: X — no port exists (e.g., an MII module is not installed in the expansion slot). - (negative symbol) — a port exists but there is no link on the port. ! — the port is disabled. B — the port is in a blocking state. S — the port is in a listening state. R — the port is in a learning state. + — the port is in a forwarding state. s Important: Type h "Help for Legends" in the Port Configuration Menu for a list of the port symbols.

Viewing Statistics

Viewing statistics on a regular basis allows you to evaluate your network's performance. You can view current statistics for the IntraStack on a per-port basis by accessing the Statistics Menu in the Local Management Interface.

To view statistics:

1. Access the IntraStack's Local Management Interface.

   S Important: Refer to Chapter 4,"Setting Up For Management" for instructions on how to connect to the Local Management Interface.

2. Type s in the Local Management Interface Main Menu.

   A screen similar to Figure 6-3 appears:

```
IntraStack 6014 DSB Statistics Menu. Port=1, Elapsed=0:00:00:00

   <Counter Name>    <Curr/s>    <Peak/s>     <Avg/s>     <Total>
---< RX Counters >-------------------------------------------------
       Good Bytes          0           0           0           0
      Good Frames          0           0           0           0
   Dropped Frames          0           0           0           0
      Total Bytes          0           0           0           0
     Total Frames          0           0           0           0
---< TX Counters >-------------------------------------------------
       Good Bytes          0           0           0           0
      Good Frames          0           0           0           0
---<    Errors   >-------------------------------------------------
       CRC Errors          0           0           0           0
            Runts          0           0           0           0
   Frame Too Long          0           0           0           0
          Jabbers          0           0           0           0
       Collisions          0           0           0           0
     Total Errors          0           0           0           0



c>lear, r>efresh, n>ext port, p>rev port, s>elect port, q>uit
```

Figure 6-3 Statistics Menu

There are two pages of statistics, which are displayed for one port at a time. The current port for which statistics are displayed is shown at the top of the screen (next to Port=).

Δ *Note:* For a description of each counter, see Table 6-3 on page 6-10.

Selecting a Port

To monitor another port:

- Type n to monitor the next port.
- Type p to monitor the previous port.
- To go directly to another port: type s (select), enter the port number, then press return.

Monitoring Counters

Each port is monitored in four columns.

- Curr ent/per second
  Displays the number of counter occurrences each second.
- Peak/per second
  Displays the largest number of counter occurrences since opening or resetting the screen.
- Average/per second
  Displays the average number of counter occurrences since opening or resetting the screen.
- Total
  Displays the total number of counter occurrences since opening or resetting the screen.

Resetting Statistics

- Type c (clear) to reset the counters to zero.

Refreshing Statistics

- Type r to refresh the screen with the latest statistics for the current port.

Exiting the Statistics Menu

- Type q to exit and return to the Local Management Interface Main Menu.

Counter Descriptions

Table 6-3 describes each counter that is monitored by the IntraStack.

Table 6-3 Statistics Counters Descriptions

Setting	Description
<RX Counters>	
Good Bytes	The total number of good bytes received.
Good Frames	The total number of good packets (including unicast, broadcast, and multicast packets) received.
Dropped Frames	The number of packets dropped due to lack of buffering.
Total Bytes	The total number of bytes received.
Total Frames	The total number of frames received.
<TX Counters>	
Good Bytes	The total number of good bytes transmitted.
Good Frames	The total number of packets (including bad, broadcast, and multicast packets) transmitted.
<Errors>	
CRC Errors	A count of frames received on a particular interface that are an integral number of octets in length but do not pass the FCS check.
Runts	The number of frames shorter than 64 bytes.
Frame Too Long	The number of frames longer than 1518 bytes.
Jabbers	The total number of packets received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either an FCS error or an alignment error.
Collisions	The total number of collisions
Total Errors	The total number of errors received.

Setting	Description
<Frame Counters>	
Good Broadcast	The total number of good broadcast packets.
Good Multicast	The total number of good multicast packets.
64-Byte Frames	The total number of packets (including error packets) received with 64 octets (excluding framing bits, but including FCS octets).
65-127 Frames	The total number of packets (including error packets) received that were between 65 and 127 octets in length (excluding framing bits, but including FCS octets).
128-255 Frames	The total number of packets (including error packets) received that were between 128 and 255 octets in length (excluding framing bits, but including FCS octets).
256-511 Frames	The total number of packets (including error packets) received that were between 256 and 511 octets in length (excluding framing bits, but including FCS octets).
512-1023 Frames	The total number of packets (including error packets) received that were between 512 and 1023 octets in length (excluding framing bits, but including FCS octets).
1024-1518 Frames	The total number of packets (including error packets) received that were between 1024 and 1518 octets in length (excluding framing bits, but including FCS octets).
<Bus Usage>	
Frames From Bus	The total number of good frames from PCI bus.
Frames to Bus	The total number of good frames to PCI bus.

Preparing for Traffic Monitoring

You can monitor traffic on the IntraStack 6014DSB by connecting an external traffic analyzer to one of the ports on the IntraStack.

By connecting a traffic analyzer to a port, you can diagnose network traffic from a single point.

The IntraStack lets you designate one port as the monitoring port. You then connect an external traffic analyzer to that monitoring port.

Next, you configure any port on the IntraStack to be the source of the frames for the monitoring port. This port is known as the monitored port. All traffic present on the monitored port is mirrored onto the monitoring port. Any port can be analyzed by changing the monitored port.

To prepare for traffic monitoring:

1. Access the IntraStack's Local Management Interface.

   Important: Refer to Chapter 4, "Setting Up For Management" for instructions on how to connect to the Local Management Interface.

2. Type **c** to open the Configuration Menu.

   The "Enter Password" prompt appears.

3. Enter your password at the "Enter Password" prompt.

4. Type **m** to open the Traffic Monitoring Configuration Menu.

   A screen similar to Figure 6-4 appears.

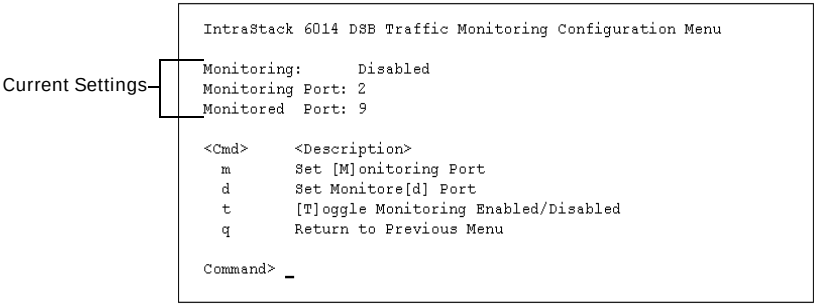


Figure 6-4 Traffic Monitoring Configuration Menu

5 Type t to toggle traffic monitoring to enabled.

6 Type m to set a monitoring port.

7 Enter the number of the port you want to connect a traffic analyzer to at the prompt (this becomes your monitoring port), then press return.

8 Type d to set a monitored port.

9 Enter the number of the port you want to be monitored at the prompt (this becomes your monitored port), then press return.

10 Connect an external traffic analyzer to your monitoring port.

The IntraStack is prepared for traffic monitoring. Refer to your traffic analyzer's User's Manual for information on using the traffic analyzer.

7

Advanced Management

This chapter describes how to configure the Spanning Tree Protocol on the IntraStack 6014DSB.

This chapter contains the following sections:

Advanced Management

Spanning Tree Protocol

The Spanning Tree Protocol (STP) is a part of the IEEE 802.1d bridge specification. It provides fault tolerance on a network by detecting potential "bridged loops" and then removing them by blocking the appropriate ports to other switches.

For example, in a large network with multiple paths, there is a possibility that the same message will get broadcast all over the network through multiple paths, resulting in a great amount of extraneous network traffic, and possibly, network downtime. This "closed path" or "bridged loop" among the networks could be damaging because it could start an unending packet-passing process.

With the Spanning Tree Protocol applied to the network, a path between every pair of accessible nodes on the network is mapped, ensuring that there are no loops in all of the network paths.

S Important: To explain STP more effectively, the IntraStack is defined as a bridge in this chapter.

How it Works

The Spanning Tree Protocol requires the following:

- Communication between all the bridges on the network.
- One bridge to start as a master, or Root Bridge.

The communication between the bridges is carried out using Bridge Protocol Data Units (BPDUs), which are transmitted in packets with a known multicast address.

Δ *Note:* BPDU packets provide information to the Spanning Tree bridges about the configuration of the Spanning Tree network.

The Root Bridge is a central point from which the network is configured. It is selected on the basis of having the lowest Bridge Identifier value. (This is a combination of the bridge's unique MAC address and a priority component defined for the bridge.)

The Root Bridge generates BPDUs on all ports at a regular interval known as the Hello Time. All other bridges in the network have a Root Port. This is the port nearest to the Root Bridge, and it is used for receiving the BPDUs initiated by the Root Bridge.

Enabling/ Disabling STP

The IntraStack is shipped with Spanning Tree enabled on all ports. It can be manually enabled or disabled following the instructions below.

To enable or disable STP on your IntraStack:

1. Access the Local Management Interface.

   Important: Refer to Chapter 4, "Setting Up For Management" for information on accessing the Local Management Interface.

2. Type c to open the Configuration Menu. The "Enter Password" prompt appears.

3. Type your password at the prompt.

4. Open the Spanning Tree Configuration Menu by typing s in the Configuration Menu. A screen similar to Figure 7-1 appears:

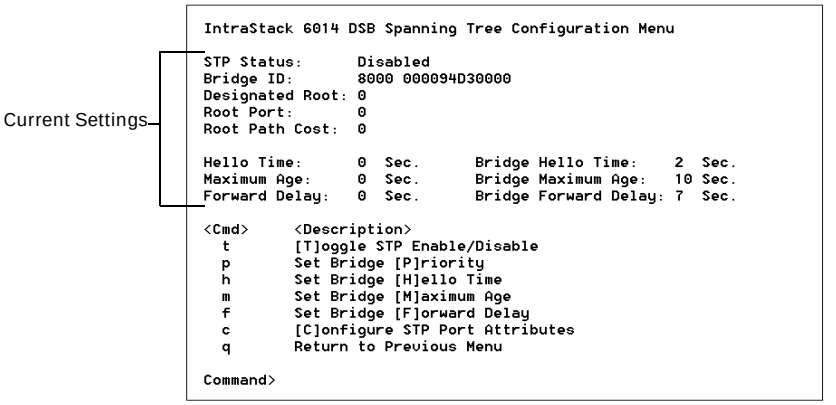


Figure 7-1 Spanning Tree Configuration Menu

5 Type t to toggle STP to enabled or disabled.

If you select disabled, you are prompted to confirm the change.

The STP status is changed. The status is displayed at the top of the screen (next to STP Status).

For a description of the STP's current settings, see Table 7-1 on page 7-5.

Configuring STP Parameters

The IntraStack is shipped with the following STP default values:

- STP Status — enabled
- Switch Priority — 0 x 8000
- Maximum Age — 10 seconds
- Hello Time — 2 seconds
- Forward Delay — 7 seconds

Table 7-1 describes each STP parameter.

S Important: You should NOT configure any STP parameters unless you have knowledge and experience with the IEEE 802.1d specification.

Table 7-1 Spanning Tree Configuration Menu Settings

Setting	Description
Switch ID	The identification number of the IntraStack. This value cannot be changed.
STP Status	The status of Spanning Tree on the IntraStack. Enabled — Spanning Tree is enabled. Disabled — Spanning Tree is disabled.
Switch Priority	The priority value for this IntraStack switch. The switch with the lowest priority value in a Spanning Tree becomes the root bridge.
Maximum Age	Determines how long the switch waits before trying to re-configure the network when it is the Root Bridge. If the switch has not received a BPDU within the time specified, it will try to reconfigure the STP topology. The default value is 10 seconds. The range of permitted values is between 6 and 40 seconds. Increasing the value of the Hello timer and the Maximum Age timer together may reduce the amount of traffic on a stable network. However, the bridge processes information about changes to available paths more slowly. As a result, when a change occurs, it takes longer for the bridge to adjust.

Setting	Description
Hello Time	Controls the frequency at which the switch sends a BPDU or "hello" packet. The default value is 2 seconds. (This causes the switch to broadcast a BPDU packet every two seconds.) The range of permitted values is between 1 and 10 seconds. Increasing the value of the Hello timer may reduce the number of BPDU packets transmitted on the network and may make the network less responsive to change.
Forward Delay	Controls the number of seconds a bridge must wait before it changes a link from a listening to a learning state and before it changes the link from a learning to a forwarding state. The default value is 7 seconds. (This means that after a link [or the entire switch] goes down and connectivity is re-established, the switch waits the amount of the forward delay time before it begins to forward traffic again. The range of permitted values is between 4 and 30 seconds. *Note:* A shorter forward delay value enables the switch to recover a link more quickly but may reduce overall network stability. A longer forward delay value may prevent the switch from bringing up an unstable link. An unstable link can threaten overall network stability because each time the link changes between forwarding and non-forwarding states, the entire Spanning Tree topology must be recalculated.

Configuring Switch Priority

To configure switch priority:

1. Open the Spanning Tree Configuration Menu by typing s in the Configuration Menu.
2. Type p in the Spanning Tree Configuration Menu.
3. Enter the switch priority value.

   S Important: The lower the number, the more likely it is that the switch will be the Root Bridge. See Table 7-1 on page 7-5 for more information.

4. Press return.

   The switch priority is changed.

Configuring Timers

The Spanning Tree timers — maximum age, hello time, and forward delay — determine the operation of the entire network because they control the way the switch interacts with other switches and bridges.

Before changing any of these timers' values, review the following section on timer relationships:

Timer Relationships

The timer values are related to each other, as expressed by the following formula (where the time unit is in seconds):

```
2 x (Forward Delay – 1)≥ MaxAge ≥ 2 x (Hello Time +1)
```

This means the following:

- The value of the Maximum Age timer must not be more than twice the value of the Forward Delay timer.
- The value of the Maximum Age timer must be at least twice the value of the Hello timer.

4 Increasing the length of these timers makes the switch less sensitive and more stable. When links or entire switches change states between forwarding and non-forwarding states, this affects the topology of the entire network.

Configuring Maximum Age

1. Type a in the Spanning Tree Configuration Menu.
2. Enter a value for the Maximum Age timer at the prompt.

   S Important: This value must be between 6 and 40 seconds. See Table 7-1 for a description of the Maximum Age timer.

3. Press return.

   The Maximum Age is changed.

Configuring Hello Time

1. Type h in the Spanning Tree Parameters Menu.
2. Enter a value for the Hello Time at the prompt.

   S Important: This value must be between 1 and 10 seconds. See Table 7-1 for a description of the Hello Time.

3. Press return.

   The Hello Time is changed.

Configuring Forward Delay

1. Type w from the Spanning Tree Parameters Menu.

2. Type a value for the Forwarding Delay timer at the prompt.

   S Important: This value must be between 4 and 30 seconds. See Table 7-1 for a description of the Forward Delay timer.

3. Press return.

   The Forward Delay time is changed.

Configuring STP Port Parameters

The Spanning Tree Port Configuration Menu allows you to configure and manage the STP parameters of each port on the IntraStack.

S Important: You should NOT configure any STP port parameters unless you have knowledge and experience with the IEEE 802.1d specification.

To configure the STP Port Parameters:

1. Type c in the Spanning Tree Configuration Menu.

   The STP Port Configuration Menu appears, similar to Figure 7-2.

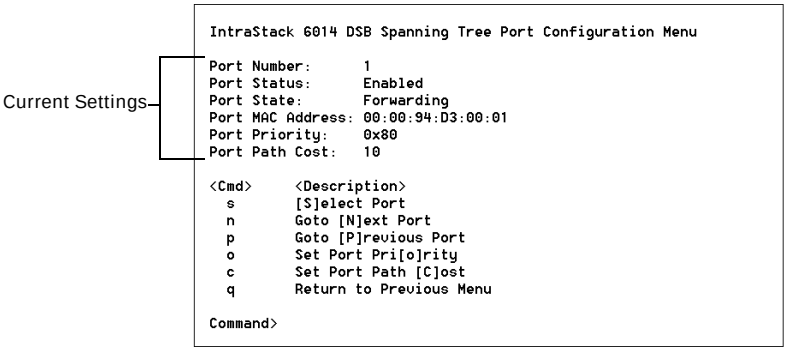


Figure 7-2 Spanning Tree Port Configuration Menu

2. Type s to select a port number.
3. Type o to set the port priority value for the port.
4. Enter the port priority value, then press return.

   Δ *Note:* See Table 7-2 on page 7-11 for a description of port priority.

5 Type c to set the port path cost.

6 Enter the port path cost, then press return.

The STP port parameters are configured.

Table 7-2 Spanning Tree Port Configuration Menu Settings

Setting	Description
Port Number	The number of the port for which information is displayed.
Port Status	The status of the port. Enabled — the port is enabled and can receive and forward packets. Disabled — the port is disabled.
Port State	The current state of the port. Disabled — the port is disabled and cannot forward packets; it does not participate in STP operation. Listening — the port is preparing to forward packets but has been temporarily blocked to prevent loop. During the Listening state, BPDUs are transmitted, received, and processed. The port is included in STP calculations. Blocking — the port is not forwarding packets in order to prevent more than one active path on the network. The port is included in STP calculations, and BPDUs can be received, and processed. Learning — the port is preparing to forward packets but has been temporarily blocked to prevent a loop. During this state the switch learns the addresses of all error-free packets. The port is included in STP calculations and BPDUs can be transmitted, received, and processed. Forwarding — the port is able to forward received packets. BPDUs can also be transmitted, received, and processed.
Port MAC Address	The MAC address of the device connected to the port.

Setting	Description
Port Priority	The priority of the port. By changing the priority, you can make the port more or less likely to become the Root Port.
Port Path Cost	The cost factor assigned to the port. The lower the assigned port cost, the more likely the port is to be accessed.

Appendix A

Troubleshooting

This section provides some diagnostic tips for troubleshooting problems with your network and the IntraStack 6014DSB.

LED Indicators

The following table describes some possible errors and solutions for troubleshooting problems via the switch's LEDs.

LED Error Type/Cause	Solution (Options or Steps)
Power LED does not come on when the power cord is connected to an outlet	
o AC power source is not operational.	o Check the AC power source.
o Power cord not connected/faulty.	o Connect/replace the power cord.
o Internal power supply has failed.	o If configured, ensure redundant DC power supply is connected and is operating (schedule time to return unit for repair).
Data LED for a port never comes on or never blinks	
o Cable connection is broken or faulty.	o Make sure the LINK LED is on; if the LINK LED is off check the cable.
o Equipment to which the port is connected is not operating.	o Make sure the device to which the port is connected is operating properly.
Max Util (maximum utilization) LED for a port never blinks (steady light)	
o Port is overloaded.	o Check the port statistics for the amount of traffic, errors, etc. being transmitted on the port.

LED Error Type/Cause	Solution (Options or Steps)
Link LED for the port goes off	
o Cable connection is broken.	o Make sure connectors are seated correctly in the equipment at both ends of the cable. Check the continuity of the wires in the cable and the pin assignments on the RJ-45 connectors.
o Network station to which the port is connected has been powered off.	o Make sure the station to which the port is connected is plugged in and powered on.
o Wrong type of cable is connected between the port and the equipment.	o Make sure the correct type of cable is connected to the port. See “Connecting to the Network” on page 2-13 for cabling guidelines.

Appendix B

Technical Specifications

Network Management Platforms Supported

- SNMP-compatible management software
- HTTP management software
- Telnet software

LEDs

- 100Mbps operation
- Maximum Utilization
- Full Duplex
- Data
- Link
- Power
- RPS
- Fan Fail

Connectors

- RS-232 (DB-9)
- RJ-45 (10Base-T and 100Base-TX)
- MII (Media Independent Interface)

Spanning Tree Support

- IEEE 802.1d

MAC Address Table Size

- 8,000

Dimensions

Base (6014DSB) (1.5 RU [rack unit] high)

- Width: 17.1 inches (434.3 mm)
- Height: 2.55 inches (64.8 mm)
- Depth: 13.5 inches (342.9 mm)

Expansion unit (1 RU high)

- Width: 17.1 inches (434.3 mm)
- Height: 1.75 inches (44.5 mm)
- Depth: 13.5 inches (342.9 mm)

Weight

Base (6014DSB)

- 12 pounds (5.4 kg)

Expansion unit

- 9.5 pounds (4.3 kg)

Power Specifications

- Voltage range: 100 to 240 VAC
- Frequency range: 60/50 Hz
- Maximum current range (Base): 2A
- Maximum current range (Expansion unit): 1.6A

Environmental Specifications

- Temperature: 0° to 45° C
- Relative Humidity: 5% to 85% non-condensing

Standards Compliance

- MIB II
- RMON (1 group)
- BootP
- DHCP
- IEEE 802.3
- IEEE 802.3u
- IEEE 802.1d
- Safety: UL, CSA, VDE, TUV
- Emissions: FCC Class B, EN55022, CE

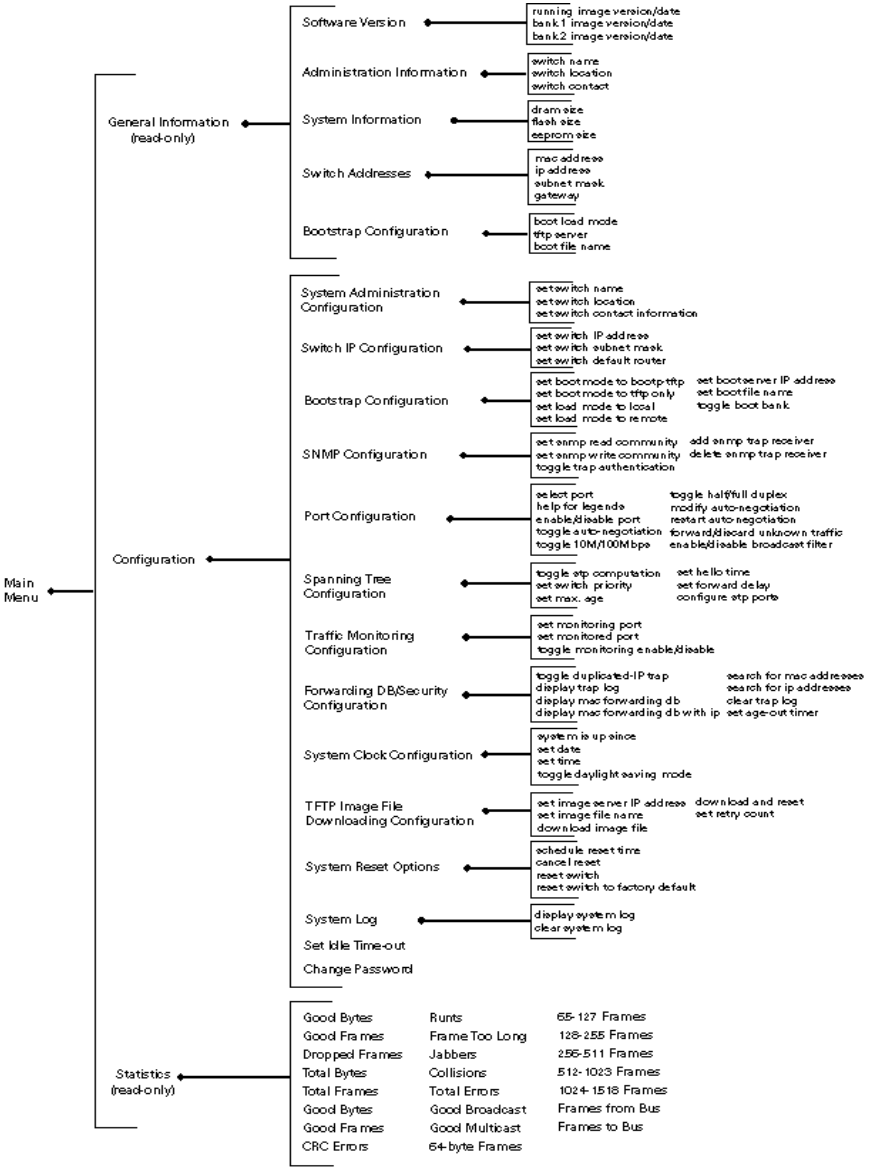
Mounting Options

- Rack Mounting: standard 19-inch equipment rack
- Desktop/Free-standing

Redundant Power Supply

- Compatible with Asanté's RPSU 6000 (part number 99-00454-07) [sold separately]

Console Management Map



Appendix D

Technical Support

To contact Asanté Technical Support:

Telephone:	(800) 622-7464
Fax:	(408) 432-6018
Fax-Back:	(800) 741-8607
Internet mail:	suport@asante.com
World Wide Web site:	http://www.asante.com
Bulletin Board Service (BBS):	(408) 432-1416
ARA BBS (guest log in):	(408) 432-1416
AppleLink mail/BBS:	ASANTE
FTP Archive:	ftp.asante.com

Technical Support Hours

6:00 A.M. to 5:00 P.M. Pacific Standard Time, Monday – Friday

INDEX

C

G

H

I

M

T